

RPS Design Features

- Removal of both rolls to one side, without frame dismantling.
- No need to remove the RPS bin, feeding device or hydraulic lines
- Heavy swiveling support plates (1 operating position, 6 open position); activated by either hydraulic cylinders (2) or standard lifting device.
- Support plates (1) equipped with replaceable, hardened plates.
- Easy opening of roll cover by hinge on front side plate (3).
- Permanently mounted frame extension (4) with twin cable winch system (7) for roll removal (5) and installation.
- Frame extension equipped with low friction elements or alternative transport cart.
- Gearbox assembly/dismounting device, consisting of hydraulic jacks (8), support/moving plate (9), tie-bars (10), support frames (11) with lifting points for cardan shaft (12).
- Simple, but exact vertical and horizontal alignment by 3 standard hydraulic cylinders and adjustment sets (13).
- Load control of each support point by pressure gauge during assembly and dismounting.
- No additional special tools required.
- Horizontal movement of gearboxes by standard cable or chain hoist.

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High Pressure Grinding Roller Presses

**KHD HUMBOLDT
WEDAG**

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High Pressure Grinding

KHD Humboldt Wedag Roller Presses.

With our Roller Presses, the grinding pressure is transferred from the hydraulic system via the movable roll to the material bed and absorbed in a stable, closed machine frame. A key feature is the mounting of the rollers in oil-lubricated cylindrical roller bearings. The oil is both, lubricant and cooling agent. Alternatively, grease lubrication is possible. Power transmission from the electric motors is effected via cardan shaft, fluid or safe set coupling and clamping disc fitted gear boxes, usually of planetary design. Depending on the application, the rollers are either one piece solid construction or shaft and tire design with suitable wear protection for almost all applications in the cement and minerals industry.

Always up to expectations.

The KHD Humboldt Wedag Roller Press is available in ten standard sizes ranging in grinding force from 2 to 32 meganewtons. The specific grinding pressure is kept below 7.0N/mm² in order to limit the stress on the rollers (grinding pressure = grinding force/roll diameter/roll width). The pressure between the rolls can be lower for grinding granulated slag, raw material or for special applications, such as preparation of ore. To keep wear costs to a minimum when grinding ore, the rollers are studded with tungsten-carbide studs. The feed material then forms an autogenous wear lining by filling the space between the studs.

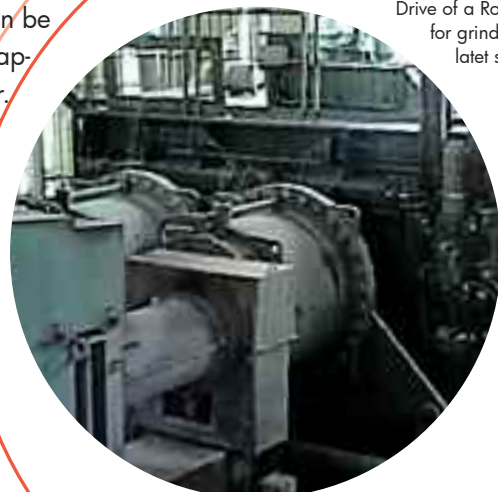
KHD Roller Presses offer a reliable solution for every application.

Roller surface with autogenous wear protection

Mega-newton	Type A Diameter x width (mm x mm)	Type B Diameter x width (mm x mm)	Motor power both motors (max kW)
2	1,000 x 400	1,000 x 500	280
3	1,200 x 500	1,200 x 630	500
5	1,200 x 630	1,200 x 800	630
7	1,400 x 800	1,400 x 1,100	1,100
10	1,400 x 1,100	1,400 x 1,400	1,600
13	1,400 x 1,400	1,700 x 1,400	2,000
16	1,700 x 1,400	1,700 x 1,800	2,600
20	1,700 x 1,800	2,100 x 1,800	3,500
25	2,100 x 1,800	2,100 x 2,300	4,600
32	2,100 x 2,300	2,600 x 2,300	6,000

A driving force: reasonably stressed.

The drive power is transferred to the grinding rollers via multi-stage planetary gearboxes with first stage spur gears. The gearboxes are mounted on the drive end of the roller shaft using a hydraulic shrink coupling. While giving absolute safety against slip, the coupling allows rapid removal if required. The torque supports are linked directly to the machine foundation. This arrangement prevents torque related stress from acting on roller shafts and bearings. A V-belt drive can be used for drives of up to approx. 400kW per motor. Drives above 400kW are equipped with fluid or safe set coupling and cardan shaft.



Drive of a Roller Press for grinding granulated slag.

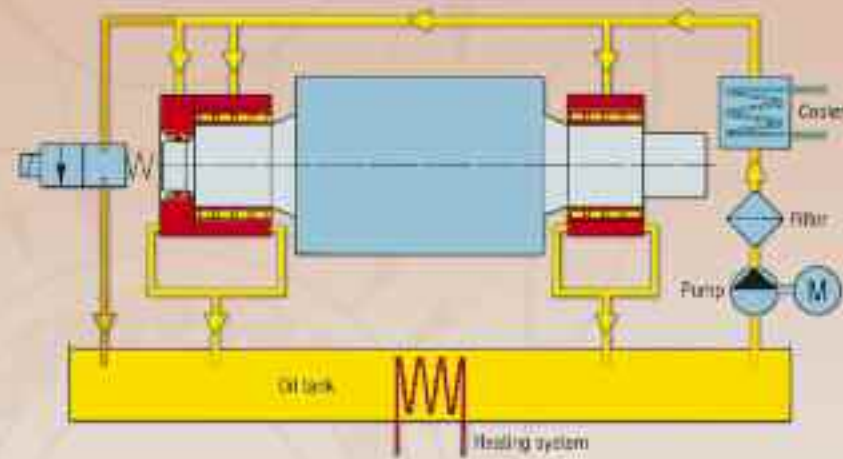
A framework you'll work better with.

The machine frame has identical upper and lower tiebars. Rubber pads are placed between the roller bearing blocks and the frame ends. The rubber pads act as an articulated joint and have a vibration damping effect. The RPS-type as a special type (see last page) reduces maintenance time during roller changes. The doors in the roll cover permit rapid and wide access to the rollers for inspection and maintenance.

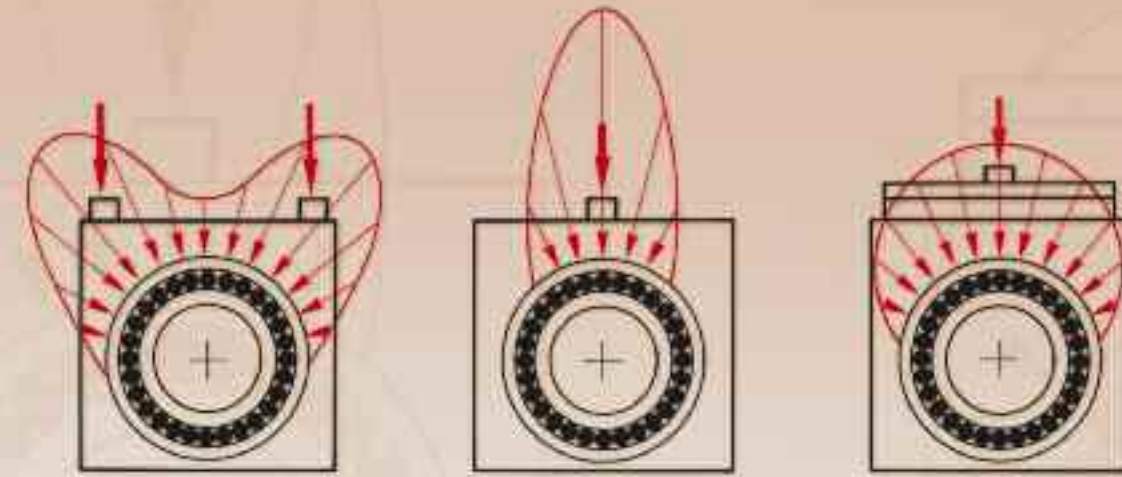


The major components of Roller Presses:

- 1 Feed gate
- 2 Roll cover
- 3 Drive
- 4 Cylindrical roller bearings
- 5 Hydraulic cylinder
- 6 Hydraulic pressing device
- 7 Machine frame
- 8 Service platform



Oil lubrication diagramm



2 point load

Single point load

Even load distribution achieved with rubber pad

A question of the right bearings. Roller Presses: roller support

Roller Press rolls and bearings.

In KHD Roller Presses, the rollers are supported in radial, multi-row cylindrical roller bearings. Axial bearings take up the axial force and transfer it into the machine frame. The bearing housings are guided by exterior slide frames allowing stressless skewing of the rolls. During skewing, bearing housing, cylindrical roll bearing and shaft are kept in parallel alignment with the roller shaft. Bearing and bearing housing cannot move relatively to each other. The seals remain fixed in place and cannot move apart.

The slight angular movements between bearing housing and the hydraulic cylinder, which is moveable in all directions, are take up by a rubber pad. This ensures an even load distribution on the roller bearing, substantially increasing the life of the bearing.

Additional long life design features of KHD Roller Presses include:

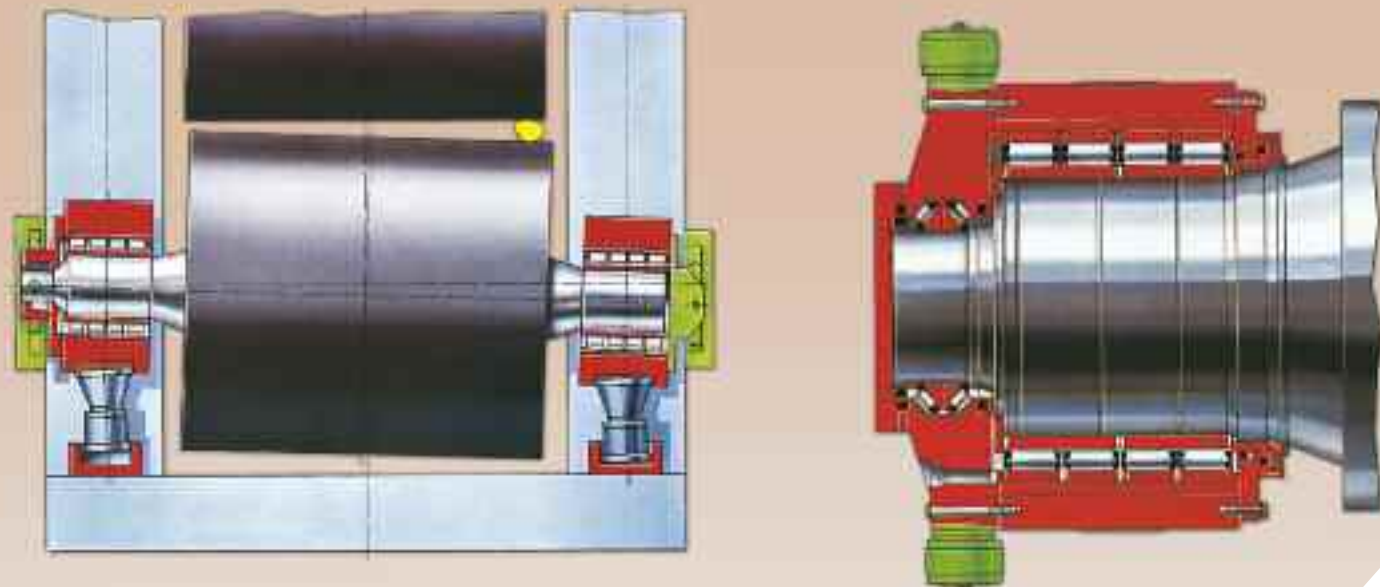
- Generously sized bearing load factor
- Continuous feeding of filtered lubrication oil
- Bearings cooled by the lubrication oil for low bearing temperature
- Bearing sealing with fixed radial shaft sealings arranged back to back
- Additional permanently greased labyrinth with V-ring and separate dust labyrinth on the inner side of the bearings

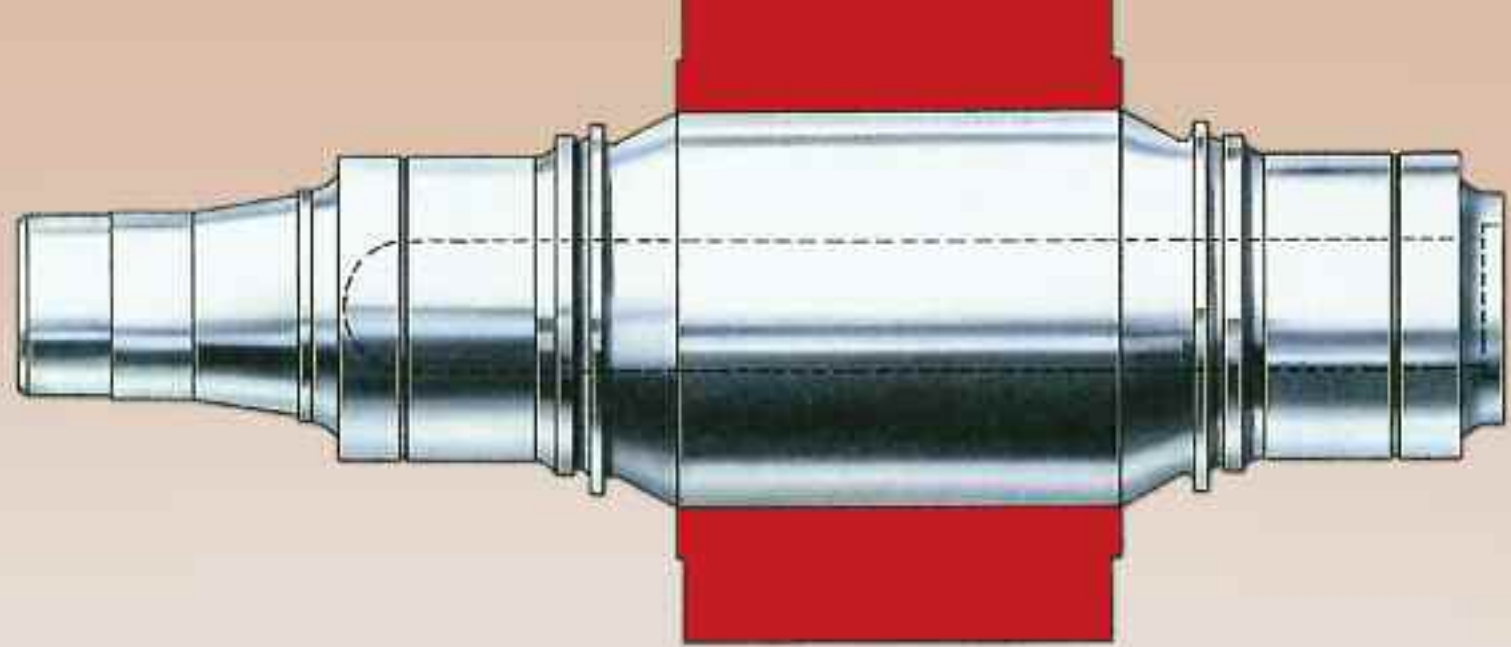
Oil lubricated roller bearings are now standard with all KHD Humboldt Wedag Roller Presses. All contact points on the cylindrical roller bearing are supplied evenly with lubrication. Operating cost can be further reduced by checking the state of lubricant regularly (alternative grease lubrication).

Bearing situation in case of roller skewing

Cross-section of the cylindrical roller bearing with axial bearing and external guide

Bearing housing and guide for the movable and fixed roll, bearing lubrication using oil circulation





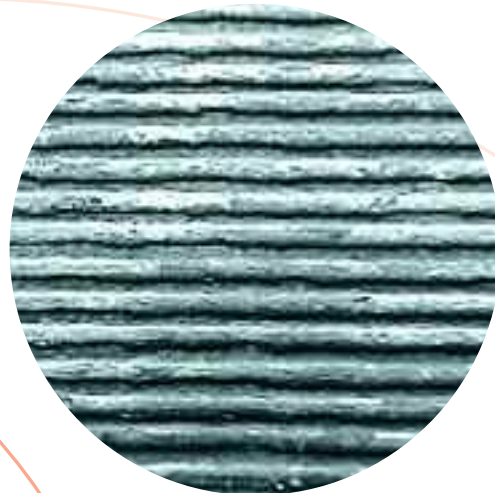
Shaft and tire

Reduced wear by autogenous wear protection. Roller Presses: rollers, surfaces

Grinding Rolls

KHD Humboldt Wedag Roller Presses offer rollers with appropriate wear protection for almost all applications in the cement and minerals industry. The two-part roller consisting of shaft and tire allows for economical surface replacement. The materials used in

the two-part roller are perfectly matched to each other for strength and welding properties. Single part rollers are used for high temperature grinding. In this version, material strength and welding properties are optimized.

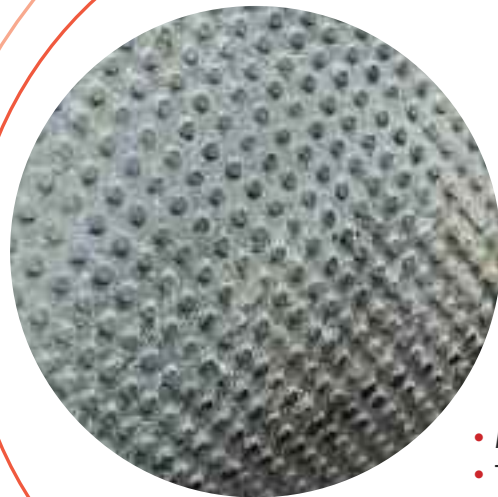


Complete-Hard-Facing (CHF) with profiles

Looking for protection against wear and tear?

The most economical protection against wear is the ground material itself. For this reason, roller wear surfaces are designed to keep a portion of the ground material between the surface pattern leading to reduced wear. An additional advantage of this concept is the material draw-in properties of the rollers providing stable operating conditions even during high fineness grinding.

- Multi-layer welding enables long running times without stoppages.
- The complete hard face welded surface is used for feed material of normal wear characteristic. Surface repair can be carried out quickly.
- The surface with hard-alloy studs is used for extremely abrasive materials.



Hard alloy pins

We prefer to play safe.

The Roller Press must be protected against foreign bodies and large feed sizes. Magnetic separators, metal detectors and screens upstream of the Roller Press have been a proven solution. The removal of foreign bodies by automatically controlled diverter gates prevents operation stoppages.

Passive security against overload is provided by modern hydraulic equipment together with properly designed roller materials and intelligent control systems such as **ROLCOX**. Limits for maximum pressure and feed sizes have been redefined compared with

the early days of high pressure grinding. The grinding process has been further optimized by introducing the **V-SEPARATOR** which makes a major contribution towards stable operation and greater operating security.



No quality without stringent quality control.

Mechanically-manufactured roller surface (CHF)

