

02.11.2007

Complete Array of Lining Materials

Efficient Wear Protection for Vertical Roller Mills

Vertical roller mills have gained a firm footing in many branches of industry for size reduction of bulk materials. Typical applications are in power plants and in the cement industry. Like all other bulk material handling and processing equipment, vertical roller mills are subject to considerable wear. Typical zones of wear include material feeding, the mill housing, the grinding tools and the integrated separating systems and material discharge.

To ensure high grinding quality and continuous trouble-free operation, optimal lining materials have to be used in the different mill areas. Time-proven materials of great hardness that provide appropriately long periods of use are, for example, ABRESIST fused cast basalt, KALOCER high alumina ceramics, KALCRET hard compound as well as KALMETALL-W hard overlay welding and KALMETALL-C hard casting.

The components suffering most of wear in vertical roller mills are the systems that comprise the grinding table and grinding rollers. These items differ in shape and type depending on the original equipment suppliers. The material used for grinding tables and/or grinding rollers is mostly KALMETALL-C hard casting, e.g. high quality C 153 chromium casting.

Following certain duty cycles and unavoidable wear there are basically two options. Worn down components can be replaced by new KALMETALL-C which is a reliable though expensive solution.

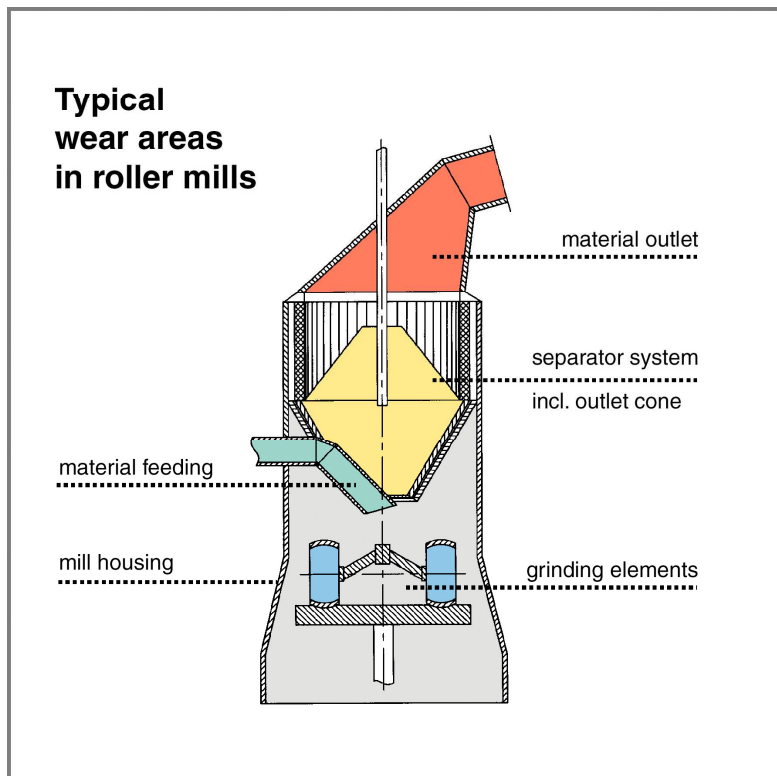
The second option involves component regeneration with KALMETALL-W. The Kalenborn welding service allows the fabrication of the original geometry and, in addition, utilization of a material which is superior to the original cast solution with respect to hardness and quality.

Typically, regeneration work is carried out by specialized shops, such as Kalenborn. This offers the advantage that the regeneration jobs can be performed continuously in an appropriate workshop environment. On the other hand, spare systems of the grinding tools must be on hand to avoid extended interruptions of plant operation.

This results in a further option for regenerating worn grinding tools „in situ“, i.e. while remaining in the mill. Complex dismantling of the mill is not necessary and high transport cost is avoided as well.

This requires, however, the use of suitable equipment and the availability of a well versed service team to ensure successful work. Experience has shown that the necessary know-how exists at specialized companies, such as Kalenborn.

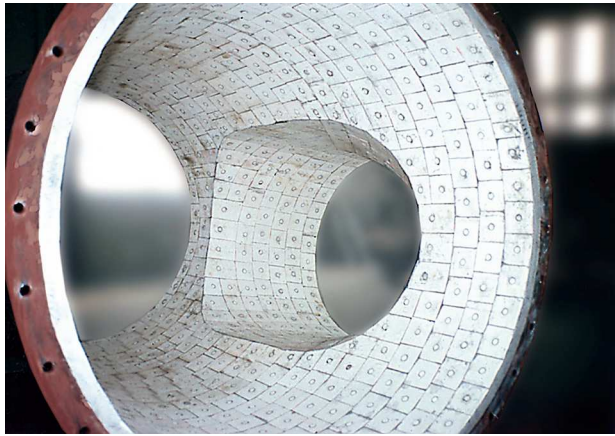
Using the most appropriate wear material and the corresponding fixing systems, vertical roller mills and other grinding systems in the basic industry are capable of reaching excellent operating results. This is true both with respect to high product quality and continued trouble-free plant operation.



Typical areas of wear in roller mills



Grinding rolls of vertical roller mills are subject to considerable wear; these are worn down raw meal grinding rollers prior to regeneration



KALOCER high alumina ceramic lining of a separator component; other efficient separator linings are KALCRET hard compound or KALMETALL-W hard overlay welding



Regenerated grinding roller of rectangular cross section with KALMETALL-W 100 hard overlay welding, diameter 1,500 mm