Classification Upgrades for Fuel Pulverizers

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Summary

Loesche America, Inc. is a wholly owned subsidiary of Loesche GmbH, Duesseldorf, Germany. Loesche has been manufacturing fuel pulverizers since 1906, and in recent years, Loesche has installed numerous grinding facilities worldwide and implemented classifier upgrades on the existing plants. The new dynamic classifier technology has been particularly of interest in Europe and North America due to changes in environmental requirements. To meet those requirements, Loesche offers better fuel classification which yields better overall plant performance and reduces emissions.

Classifier performance improvements include increased capacity and better product fineness, steeper fineness distribution slope angle, reduced amount of super fine and coarse particles in the pulverized fuel. As a result of better product fineness, the system offers reduced NOx emissions, as well as, reduced LOI. Internal product recirculation is reduced, eliminating over-grinding, reducing wear, reducing power absorption, increasing capacity and offering a more stable mill operation. The differential pressure across the pulverizer is reduced, as well as gas flow, resulting in a reduction of excess gas to the boiler and an improved burner efficiency.

Loesche has been developing new classification technologies since 1906 when the initial coal mill was patented. The experiences in grinding coal, pet coke, minerals, cement clinker, limestone, etc. contributed to the successful development of the LSKS Dynamic Classifier. The development of the classifier was gradual through various generations, from static to second generation dynamic, to third generation static-dynamic and finally to fourth generation high efficiency static-dynamic LSKS classifier.

The newly developed Loesche LSKS high efficiency classifier improves the performance of coal and petroleum coke pulverizers, resulting in higher boiler efficiency. This is due to the redesigned air and product flow velocities and new flow characteristics within the classifier. Only the product-size material exits through the outlet and all oversized material is returned via the grit cone to the grinding table for further grinding.

Maintenance and operating costs are also reduced through:
- Reduced Power Consumption of mill and fan
- Reduced Power Consumption of the classifier drive
- Reduced wear of the grinding components
- Reduced wear of the pulverizer lining
- Controlled fineness
- Ability to grind variable fuels

Upgrading existing power generation units with dynamic classifiers represents an excellent value and return on investment. The upgrades are proven solutions to common problems such as lack of capacity, coarse product, high levels of unburned coal in ash (LOI), high NOx levels, restricted fuel usage, high wear and low burner performance.

The benefits of a Loesche classification upgrade include: increased capacity, controlled fineness, reduced unburned coal in ash (LOI), reduced NOx levels, flexible operation with alternative fuels, improved burner performance and wear life.