



Innovative Combustion Technologies Enters Agreement with Loesche Energy Systems

Innovative Combustion Technologies (ICT) is excited to announce that we are the new North American sales agent for Loesche Energy Systems, Ltd. (LES) of the United Kingdom for dynamic classifiers, pulverizers and technical services associated with size reduction of solid fuels for the power industry.

Loesche GmbH was founded in 1906 in Berlin, Germany. This family-owned company has a 100+ year history of designing and supplying grinding and classifying equipment to the power and cement industry. With their leading technology and +850 dedicated employees, manufacturing plants, 18 operating units and agents they offer the best available technology along with novel solutions to industry.

Loesche Energy Systems, a subsidiary of Loesche GmbH, was launched 10 years ago as a Centre of Excellence within the group for coal mill application to power generation utilities worldwide. Loesche has designed, built and delivered over 420 dynamic classifiers to utilities meeting and often exceeding expected performance guarantees. The reference list includes dynamic classifier retrofits to manufactures of vertical spindle, ball tube mills and ball in race pulverizers in North America, Europe, Asia and Africa.

The collaboration between LES and ICT combines two companies that are committed to providing their customers with the best solutions for attaining optimum combustion. ICT's core services and products have been focused on improving combustion, boiler performance and emissions since its inception in 1993. It is ICT's opinion that Loesche's dynamic classifiers and other equipment are "best in class" and will enhance ICT's ability to better serve the needs of our customers and improve in our core services.

Not only are LES' dynamic classifiers designed to improve combustion, they are also an essential component for strategies that are aimed to:

- Increasing unit and fuel flexibility
- Able to restore capacity to operate when a mill is out of service
- Improving heat rate to better meet Clean Power Plan (CPP) objectives
- Enhance boiler reliability
- Reduce O&M Expenses
- Reducing NO_x and CO, plus achieving Environmental Compliance

Operators of coal fired plants are acutely aware of the effect pulverizer performance has on the boiler system; raw coal throughput, efficiency, reliability and emissions are all impacted by poor pulverizer performance. Improving fuel distribution and fineness are among the most important factors in optimizing combustion. Loesche Dynamic Classifiers can offer the solution for optimizing combustion on a unit; as they have been proven to improve fineness, increase pulverizer throughput, improve fuel distribution, minimize pulverizer grinding element wear, reduce pulverizer pressure drop, and can lead to a $\pm 10\%$ reduction in NO_x emissions. These benefits can be realized on all PC units, regardless of the type of coal fired.

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Objectives and Benefits of Dynamic Classifiers:

- Reduce pressure drop across the mill (ΔP).
 - Alleviates PA fan limitations
- Reduce internal material recirculation (over-grinding).
 - Reduces wear and extends life of grinding elements
 - Eliminates high fineness rumbles at low feeder speeds during aggressive load cycling or minimum load operation
 - Better and faster responses to load changes, enhanced ability to operate on AGC (Automatic Generation Control)
 - Improve pulverizer turndown
- Increase coal mill thermal capacity to dry high moisture coal which allows higher mill outlet temperature when mill outlet temperature is low.
- Increased mill capacity (throughput and fineness).
- Reduced power consumption for mill and PA Fan.
- Steeper slope on Rosin Ramler size distribution chart (uplift RR slope).
- Rosin Ramler size distribution curve typ. 54 to 57°.
- Eliminates particles > 300 Micron leaving the mill (i.e. 0% remaining on 50 mesh is achievable).
- Retrofit applications have achieved > 55% reduction in LOI.
- Retrofit applications have achieved 10-15% reduction in NO_x .
- Reduce CO emissions
- Reduce Ammonia or urea consumptions and reduces chances of NH_3 and ABS fouling
- Reduced slagging tendencies
- Reduce LPA (popcorn) ash plugging of air heater and SCR
- Able to restore ability to operate with a pulverizer out of service due to increased capacity.
- Increases fineness by 5-10% on 200 mesh.
- Ability to change classifier speed online allows optimization for fineness when coal quality changes.
- Optimization when co-firing Biomass.
- Referenced retrofits on Ball Tube Mills, Atrita Mills, and all vertical spindle mills (Raymond Bowl mill, MPS, MBF, E and EL mills).

• **Over 420 retrofits completed globally**

