Olds Elevator Helps Sandia National Laboratories Test High Temperature Falling Particle Receiver

*Olds Elevator LLC, of Hudson, NH supplied a patented “static screw” elevator to Sandia National Laboratories of Albuquerque, NM for use in a research project on high temperature Heat Transfer Fluids.*

Hudson, NH (PRWEB) June 21, 2016 -- Sandia National Laboratories recently announced the successful completion of a 3 ½ year project funded by DOE’s SunShot Initiative to develop a high temperature falling particle receiver, in which sand-like ceramic particles are heated as they fall through a beam of highly concentrated sunlight focused by an array of mirrors. The falling-particle receiver enables concentrated solar power with thermal storage for on-demand electricity production and process heat at significantly higher temperatures (up to 1,000°C), than existing heat transfer fluids like Synthetic Oil and Molten Salt.

Sandia constructed and successfully demonstrated the world’s first continuously recirculating high temperature 1MWt falling particle receiver, achieving peak particle temperatures over 900°C (1,652°F) and bulk temperatures over 800°C (1,472°F). Recirculation of the hot ceramic particles was accomplished with an Olds static screw elevator designed for material temperatures up to 1,500°F (pictured). Flow rates of the particles ranged from 10 to 40 tons per hour. The Olds elevator experienced approximately 75 thermocycles (going from ambient temperature to elevated temperature then back to ambient temperature) during the trials without any failures or degradation of performance.

The unique design of the Olds elevator allows it to handle high temperature materials without mechanical interference of moving parts due to thermal expansion. With only one moving part (lift tube) in contact with the material being conveyed this job is made easier. Depending on the temperature of the application and the height of the elevator, the lift tube and static-screw may grow up to 6 inches in length due to thermal expansion. Since the lift tube is attached at the top of the elevator and the screw at the bottom, these two expanding parts are allowed to grow down or up within the elevator frame. The tolerances between the tube and screw are generous enough such that horizontal expansion can be readily accounted for too.

See Figure 1 for a cutaway view of an ambient temperature Olds elevator in operation. See Figure 2 for an example of a high temperature Olds Elevator showing the thermal isolation and cooling system to protect the drive system.

**About Olds USA**

Olds USA is the exclusive American licensee of the Olds Elevator Technology, a revolutionary vertical conveyor solution designed to make a difference by simply, efficiently, and flexibly accomplishing virtually any vertical material elevation task. Learn more at OldsUSA.com
Contact Information
Richard McIntosh
Olds Elevator LLC
http://www.oldsusa.com
+1 6038828899

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