

Equipment Spotlight...

Muscle Shoals Rolling Mill Upgrade

Realized by Achenbach-SES

Constellium completed a modernization and automation upgrade of its three-stand cold strip rolling mill in Muscle Shoals, AL, which is currently used to produce beverage cans. The modernization was carried out by Achenbach-SES, a new joint venture company created by Achenbach Buschhütten in Germany, and SES LLC in Alliance, OH, which recently entered into an agreement to deliver rolling and slitting machinery in the U.S., Canada, and Mexico.

Rolling Mill Upgrade

The objective of the Constellium modernization project was to significantly improve the flatness of the rolled strip on its three-stand mill using electric discharge texturing (EDT) rolls and improved automation. These specialized work rolls will enable the Muscle Shoals operations to supply high precision strip. The characteristic feature of EDT strip is a lightly structured surface that allows for the high quality application of paint required by the automotive industry.

The flatness measuring roll supplied to Muscle Shoals is a closed surface flatness measuring roll with axial bores and tungsten carbide for very high wear resistance. It consists of a massive roll body, which is equipped with a high number of piezoelectric force sensors. These sensors are capable of detecting even the smallest forces of 0.01 N and are installed into axially drilled measuring chambers under high preload. The measurement distributes the tensile stress over the entire strip width. These measuring values are the basis for the flatness control loop, which adjusts to the product-specific strip flatness requirements via installed actuators. For a vibration-free operation of the flatness measuring roll, highly precise roller bearings are used that are grease lubricated. Besides the flatness measuring roll and an accompanying spare part package, Achenbach also supplied the control cabinet for the flatness measurement system, while the bearer frame and integrated brush roller were delivered by SES.

The advantages of the updated cold rolling mill include a massive roll body made from tempered steel, a roll body surface that is ideally adapted to the rolled materials, piezoelectric measuring transducers with the highest signal resolution, sensor distribution that is optimized to the rolled product width range, and a high transmission security of all measuring values by non-contact optical signal transfer, as well as maximum operational safety.

“Thanks to good planning and the strong efforts of all parties involved, production restarted on schedule,” said Jörg Schneider, senior sales manager from Achenbach-SES.

Supplier Partners

Achenbach-SES combines the technology and know-how from both companies. Achenbach Buschhütten is a family owned company with more than 100 years of mechanical engineering experience. It

is renowned as a modern system provider of foil rolling mills and its associated auxiliary systems for aluminum and its alloys, as well as being a pioneer in foil slitting machines for metals and diverse compound materials. SES is a well-established North American manufacturing supplier of metal handling, coil and strip processing, and other equipment and services, as well as automation, for the metals, metals forming, and related industries. The company carries out local installations, realizing necessary production adjustments and supporting spare parts and system services on-site.

“Our partnership with Achenbach brings a new dimension to North America, coupling the highest technology of Achenbach mills, foil lines, shape rolls, and filtration systems with the material handling equipment and local U.S. presence of SES,” said Rich Retorte, ceo of SES and manager of Achenbach-SES.



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