



Aluminum **dross skimming** handled quickly and efficiently with specialized **XL 4340V**

Large aluminum mills meet the global demand for high strength, lightweight aluminum plates, sheets, extrusions and castings by using highly efficient, productive manufacturing equipment and procedures. ❖ Among those procedures is dross skimming – the removal of a minimum amount of material from the molten aluminum furnace surface – in addition to cleaning furnace walls and bottoms without damaging the refractory lining. The process effectively improves heat transmission, increases furnace utilization time and speeds up the cold charge melting cycle as aluminum scrap and mix are stirred into the molten bath. ❖ This is a process that happens four or more times with each furnace in every 24-hour cycle at the Constellium aluminum plant in Ravenswood, West Virginia, according to Steve Tabor, casting operators manager. The goal is to complete the process as quickly and efficiently as possible to minimize the time that furnace doors are open.

GRADALL VERSATILITY ADVANTAGE

De-drossing had been accomplished at Ravenswood using a forklift equipped with a skim boom attachment. But the acquisition of a Gradall XL 4340V excavator, designed specifically for the aluminum mill process, helped make the process faster and more effective. ❖ Using a solid rubber tire undercarriage, operator Richard Riffle



quickly maneuvers the Gradall to the mouth of each furnace, opening the door and then using the telescoping boom and paddle attachment to reach through the furnace mouth to skim dross from the surface of molten aluminum that's been heated to around 1,400 degrees. ❖ Riffle said the wheeled undercarriage, with fulltime four-wheel-drive, allows him to maneuver quickly and easily into position and from one furnace to another. Although the furnaces are not far apart, the machine has a maximum travel speed up to 17.5 mph (28.2 kmh), using a variable displacement high torque piston motor powering a two-speed power shift transmission. ❖ A similar Gradall aluminum skimmer model – the XL 4240V – has a crawler undercarriage. Both are highly stable, without requiring optional stabilizers, but the wheeled undercarriage was specified for its increased speed and

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to alleviate the possibility of damage to the concrete plant floor. ❖ Using joystick controls, Riffle can telescope the boom and dross paddle attachment out 49 feet, into the mouth of the furnace. To accommodate various furnace openings or to reach in and clean the bottom of the furnace, the entire boom is capable of working at unique angles starting with its horizontal height, which can be adjusted from 74 inches to 102 inches. ❖ From the horizontal position, the height at the rear of the boom can be as low as 53.13 inches (1.3 m) from the ground level, or as high as 229.36 inches (5.8m). The front end of the boom can be adjusted from 52.9 inches (1.3 m) to 107.89 inches (2.7m) from ground level. This combination of boom movements allows the operator to position the paddle to work at the bottom of the furnace or into other hard-to-reach areas for cleaning. ❖ While Gradall is known for its triangular boom shape, the XL 4310V boom is square, telescoping the boom sections simultaneously with the use of hydraulically driven cables and a winch system. Electrical and hydraulic components are fully protected and positioned away from the furnace to avoid exposure to heat and molten metal splashes. ❖ The operator is fully protected in a special cab fabricated with heat-resistant glass and heavy-duty construction to withstand pounding common to metal mill operations. ❖ “I like the operation of the machine,” said Riffle. “We’ve only had it a few months, but already, I’ve found it easy to operate and maneuver around the plant.” In addition, the machine has gotten good reviews because of its high reliability and low maintenance



requirements. ❖ “We are using the Gradall to skim dross from two furnaces,” added Tabor, “while we work with Gradall to design another machine with an even smaller footprint to work in tighter confines.”

❖ For more information about Gradall machines designed specifically

for aluminum and steel mill applications, visit www.gradall.com or call Gradall at 800-445-4752.

To see a video of Gradall’s XL 4340V excavator ▶ handling a aluminum mill process, scan this code with your smart phone. Or visit www.gradall.com/video



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