Steel Mill Conquers the Challenge of Recovering and Flowing Thick Oil from Scale Pits

OILSKIMMERS, INC.®
The Oil Removal Solution Experts™

Viscous oil on the surface of water in scale pits presents many challenges at steel mills. Thick oil doesn't easily flow along to waste oil collection tanks once it is recovered by the skimming equipment. This is one customer's success story.

CASE HISTORY

Steel production, hot rolling millings and casting operations are high-capital, continuous processes that are tough on equipment and use large amounts of water in the manufacturing process. During these processes, waste oil that comes from machinery used to make, clean and roll steel mixes with process water and is collected in waste oil and scale pits. Steel mills are then tasked with removing oil from the collected wastewater to ensure their water is clean enough to be reused or discharged properly.

The Challenge

Historically, steel manufacturers have used a range of methods to remove oil from scale pits, with varying levels of success. The layer of oil that collects in scale pits is usually quite viscous and can be difficult to remove from the pits and keep flowing once recovered.

If it does not get removed properly, oil can have a negative effect on a mill's water cooling and filtration system, creating downstream wastewater treatment challenges and excess maintenance costs. In addition, if the steel mill is located in a cold climate the situation is even more challenging. The ambient air temperature during winter months may reach sub-zero levels, making already viscous oil even more thick and more challenging to recover and process.

To address these types of challenges, a steel mill in the Midwestern U.S. called on Oil Skimmers, Inc. to provide a solution that could not only remove the layer of heavy oil and grease from its scale pits, but also keep it flowing continuously and efficiently to a waste oil collection tank. Their existing oil removal equipment was costly to maintain and not meeting plant requirements.

Hi-flow™ Oil Discharge Package

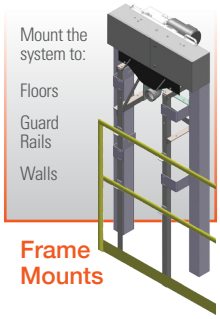
The Solution

The engineering team at Oil Skimmers, Inc. worked closely with the customer to develop a solution for their specific challenge which eventually led to the introduction of Oil Skimmer's, Inc. "Hi-Flow Oil Discharge Package." The Hi-Flow package was designed to pick up and continuously flow heavy oil and grease.

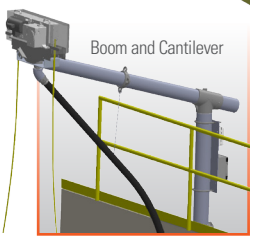
The system includes a number of key elements:

- It starts out with the Model 6V Brill® tube type oil skimmer. The oil adheres to the Model 6V's floating collector tube which is continuously brought up and out of the oil pit and scraped clean in the skimmer.
- To keep the oil flowing after the skimmer recovers it, Oil Skimmers, Inc. designed a special "heated funnel spout" that collects the skimmed oil and keeps it moving into a heat traced oil waste collection drain. The funnel spout can be heated easily with either electric or steam, if steam is available at the application.
- Oil Skimmer's, Inc also developed a special enclosure for the entire skimming unit to provide heat retention while allowing easy access for observation and maintenance.
- Finally, the Hi-Flow package includes a removable and adjustable debris screen to filter out solids and prevent them from flowing with the oil to the centralized collection vessel.

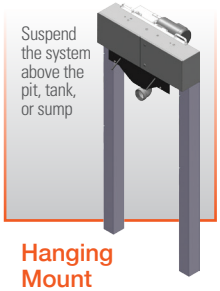
The Hi-Flow package can be used with these oil removal systems:



Frame Mounts



Extended Reach



Hanging Mount

The Result

Initially, the steel mill decided to install three Model 6V oil skimmers with the steam-heated Hi-Flow package on three of its scale pits to see if the solution met its needs. After months of testing in bitter winter cold, the steel mill was convinced of the Hi-Flow's effectiveness and ordered additional systems – one for every scale pit in the mill.

Since then, the steel mill's fleet of oil skimming systems, including the Model 6V Brill® tube type oil skimmer and the Hi-Flow Discharge package, has provided an efficient, complete solution, removing and flowing hundreds of gallons of the thickest oil each day. These low maintenance systems operate efficiently and continuously 24/7, protecting downstream equipment while minimizing downtime.

For 50 years, Oil Skimmers, Inc., has provided specialized, standard and custom engineered oil skimming and removal solutions for more than 35,000 applications in 119 countries across a wide range of industries.

This focus and breadth of experience has made us the leader in designing and delivering oil removal solutions for even the most diverse and demanding applications. From the most basic to the most complex, we have developed complete waste oil recovery solutions for facilities both large and small that are easy, efficient, effective, long-lasting, and low-maintenance.

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