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HAN-TEK's Billet-Crane Upgrade Cuts Steel Recycler's Handling by 66 Percent

Increased Crane Capacity Allows U.S. Bar Mill to Reduce Waste, Lower Per-Unit Costs

APPLICATION: Billet Cranes with Magnet Duty

INDUSTRY: Steel Recycling and Manufacturing

KEY COMPONENTS:

- ◆ Two refurbished billet cranes with:
 - 40-ton capacity
 - variable-frequency drives
 - 30 KW magnet rectifiers/controllers
 - air-conditioned cabs with video monitors
 - air-conditioned controls

BUSINESS ISSUE:

HAN-TEK's longtime customer was handling 11- to 14-foot billets with two 20-ton cranes, one used primarily as a backup. The crane worked continuously to keep the plant's

mills operating at capacity by feeding some 100 billets per hour, each weighing 1,800 pounds.

Facing scrap-steel costs that had more than doubled in a year, the customer was adding ever-larger surcharges to its orders. Torch-cutting the billets into 11- to 14-foot lengths cost the customer 1,650 tons in wasted steel per year, and additional steel was lost when the billets were blunted as they were fed into the mills.

After years of planning, the customer committed to investing in a process that would reduce handling, waste and energy consumption, thereby boosting yields and lowering per-unit costs. By converting to 40-foot billets, which weigh 2.7 tons, the cranes would have to move only 30 to 35 pieces per hour to achieve the same mill capacity. Further, longer billets would require fewer torch cuts – resulting in a waste savings of 1,100 tons per year. Longer billets also would reduce waste from blunting as the pieces enter the mill.

Converting the plant to handle 40-foot billets would require several elements: installing two, higher-capacity cranes with magnet service; building a new structure to house the cranes; and adding a larger, energy-efficient gas furnace.

SITUATION:

The customer is a division of the nation's largest producer and recycler of steel, with operating facilities in 14 states. The plant where HAN-TEK installed the Billet-Crane Upgrade produces

Customer Value at a Glance

With HAN-TEK's Billet-Crane upgrade in place, a manufacturer and recycler of steel was able to reduce handling by two-thirds, resulting in dramatic waste reductions, as larger billets require less handling and fewer cuts.

This HAN-TEK solution also features:

- *Two-year return on investment.*
- *Reduced energy consumption.*
- *Compatibility with existing machinery.*
- *Performance and operator comfort in a high-temperature environment.*
- *Easier, less frequent maintenance.*



HAN-TEK helped its customer design a structure to house the larger-capacity billet cranes.

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Overhead Cranes & Hoists Integrated Conveyance Equipment Systems Automation & Controls

500,000 tons per year of all grades of steel, but primarily commercial grades of medium-carbon, merchant bar quality (MBQ) steel for customers in the structural, agricultural and automotive industries. The steel products are typically used for reinforcing bar, bridge trusses, springs, fasteners and tool manufacturing. The scrap consists of recycled automotive steel, agricultural machinery and machine-shop turnings.

HAN-TEK SOLUTION:

As part of the customer's multi-phase solution, HAN-TEK obtained and arranged for the refurbishment and installation of two 80-ton billet cranes reclassified to 40-ton capacity and featuring magnet service. To operate effectively in ambient temperatures of 160° F, HAN-TEK had the cabs and controls air-conditioned. HAN-TEK also performed a full inspection of the cranes, reconfigured the controls, and altered the reeving system.

HAN-TEK also worked closely with the customer's engineers to design a structure to house the larger cranes, to ensure that the cranes would be compatible with existing machinery and would interface with the customer's new furnace.

CUSTOMER VALUE:

- **Reduced handling.** The HAN-TEK Billet Crane Upgrade allows the customer to cut handling by two-thirds – from 600,000 to 200,000 pieces per year – because the billets handled are three times as large. Reduced handling saves time, fuel and equipment wear and tear.
- **Dramatically improved yields.** Torch-cutting billets to 40 feet rather than 11 or 14 feet saves 1,100 tons of steel per year. Further, more steel is preserved because there are fewer billet ends to be blunted in the milling process.
- **Quick return on investment.** The customer expects the yield improvements made possible by the HAN-TEK Billet Crane Upgrade to generate enough savings in two years to pay for not only the cranes, but also a new structure to house them and a new furnace to accommodate the larger billets.
- **Reduced energy consumption.** The HAN-TEK solution has contributed to the customer's ability to cut energy costs in several ways: Fewer crane movements are required to move the same amount of steel; the cooling process for billets is more efficient because their additional length means they take longer to emerge from the caster; and the new, larger furnace burns cleaner and more efficiently.
- **Compatibility with existing machinery.** The refurbished cranes obtained by HAN-TEK are manufactured by the same company as the customer's other machinery, ensuring compatibility.
- **Easier, less frequent maintenance.** A walkway allows easy access to the cranes for maintenance, and their recent refurbishment and reduced workload ensure a lengthy period of trouble-free operation. Air-conditioning lengthens the life of the controls and keeps them functioning optimally.

To learn more about HAN-TEK automation, robotics, crane, hoist and other solutions, call HAN-TEK at 800-836-0237, visit www.HAN-TEK.com, or write sales@HAN-TEK.com.

HAN-TEK, Inc., an ISO 9001:2000 registered company, customizes advanced automation technology to optimize manufacturing-assembly and product-distribution systems.

Founded in 1961, HAN-TEK specializes in systems automation and robotics, integrated conveyors, overhead cranes, and controls.