

Funk Finecast, Inc., Columbus

Intervention Key Words: Ergolift Industrial Manipulator, Base Plate

Industry: Manufacturing, Other: Foundry

Risk Factor(s): Awkward Posture- Back deviations, Wrist and Shoulder deviations, High Hand Force- Pinching/Gripping, Manual Handling- Lifting/Carrying, Pushing/Pulling, Repetitive motion

Situation:

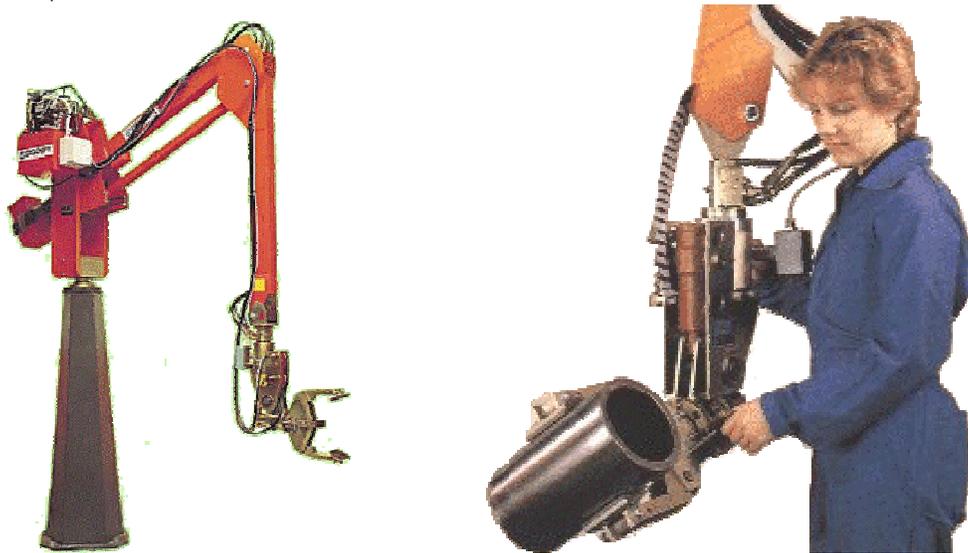
Funk Finecast Inc. is an investment foundry specialized in the manufacturing of commercial grade ferrous and non-ferrous castings. Their products are made by pouring molten metal into ceramic molds. This process is done manually in a series of steps. The first task is the pouring of molten metal into ceramic trees and utilizes a crew of four workers. Two (of the four associates) hold and lift a yoke with a ceramic pouring ladle in the center (40 pounds) and carry it onto a melt furnace to fill the ladle with molten steel, ranging in temperature from 2750F to 3100F. Between 50 and 135 pounds of molten steel is tapped into the ladle. The two associates then carry the ladle (10 to 25 feet) where one of the two associates turns the yoke and pours the molten steel into ceramic shells that are placed in the sand beds (by a third associate). A fourth worker then applies a cap to the ceramic shells and places a can over them. The total number of ceramic trees poured per day averages 150 with a maximum amount of metal poured equaling 8,820 pounds per day. The second task involves the moving of the poured shells from the sand beds onto metal skids for transporting out of the pouring area. Another employee lifts poured molds from the sand beds and places the shells (ranging in weight from 30 to 100 pounds) on the metal skids, using a long and heavy ice tong type device. Cumulative Trauma Disorder (CTD) risk factors include significant amounts of repetitive lifting, twisting, bending, awkward postures, carrying/lifting heavy loads, wrist deviations, elbow rotations and forceful exertions stemming from manual material handling practices.



Tasks include pouring and transferring

Solution:

Funk Finecast Inc. purchased an Ergolift material handling device to address their CTD issues. The device is a self-contained, manually controlled hydraulic lifting arm used for quick, convenient and accurate handling of materials. The manufacturer claims, "It is much faster, safer, more versatile, and accurate than a jib crane and a mere fraction of the cost of an industrial robot." The Ergolift is used in both the pouring and the transferring jobs, eliminating a number of high risk tasks that were once done manually. Total cost for the lift was \$54,040. Funk Finecast received \$40,000 in assistance from SafetyGrant\$ to offset the costs.



Manufacturer representations of the Ergolift

Results:

- CTD Risk Factor Scores, averaged over 2 tasks, decreased 95% following the intervention.
- CTD Rate (standardized per 200,000 hours worked) decreased from 32.8 the year prior to the intervention to 32.0 over the 2 years following. Restricted Days rate decreased from 469.4 to 352.2 and Employee Turnover Rate fell from 43.7 to 36.6 over the same time period.
- An increase was observed in Lost Days Rate which may not be directly attributed to the intervention.