



**Standard Manufacturers
Services Limited**

RWIP and PROJECT ICE Executive Summary

Standard Manufacturers Services Ltd (SMS) is a world class metal manufacturer, located in Winnipeg, consisting of an aluminum foundry and machining facility that has been providing product and services to the transportation, agricultural, aerospace, and defense industries for over 30 years. In 2012, SMS applied for and received a Research and Workplace Innovation Program (RWIP) grant to develop integrated safety systems to support advanced robotic technology in SMS's foundry for the manufacture of aluminum castings (workers in the foundry industry are at risk of burns and scalding from molten metal).

The outcomes from our Workers Compensation Board (WCB) funded Workplace Innovation project titled "Innovating Casting Excellence" (Project ICE) have been exceptional. The profile of our injury statistics prior to Project ICE demonstrated that over half our workplace injuries were burns/ splash that occurred as a result of workers manually handling 1350 degree Fahrenheit molten aluminum during the casting process (Figure 1). We looked to available engineering technology as the first step in reducing the risk of burn injuries among the workers in the foundry. We invested in a robotic cell for the expressed purpose of incorporating robotic technology into our production processes. We anticipated that the robotic arm would pour molten aluminum into molds thus reducing, or eliminating, the risks workers face when manually pouring molten metal. It was also anticipated that the robotic arm would also perform related manufacturing tasks such as lifting the castings onto a cooling conveyer, a task with a high risk of not only burns but musculoskeletal injuries as well.

RWIP funding was utilized to support the development of safe work procedures to operate the robotic arm during the metal casting process, a hazard analysis of tasks and a manual for training workers to work safely in the foundry's modified production processes.

At the start of the project, a significant reduction in burn injuries were anticipated following modifications to the plant's design using robotics and the development



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of safe work procedures in support of the modified production processes. After concluding the two year project not a single foundry worker operating the robotic arm sustained a burn injury (Figure 2). SMS has obtained sustainable safety improvements resulting from this project and has reduced burn injuries among our foundry workers. We have also demonstrated the success of robotic technology in the prevention of burn and musculoskeletal injuries and created safety practices in SMS's foundry.

We are thrilled with the outcomes of this project and like to thank the WCB for financially supporting Project ICE with an RWIP grant. Thank you!

Figure 1. Prior to Project ICE, overall foundry injury statistics

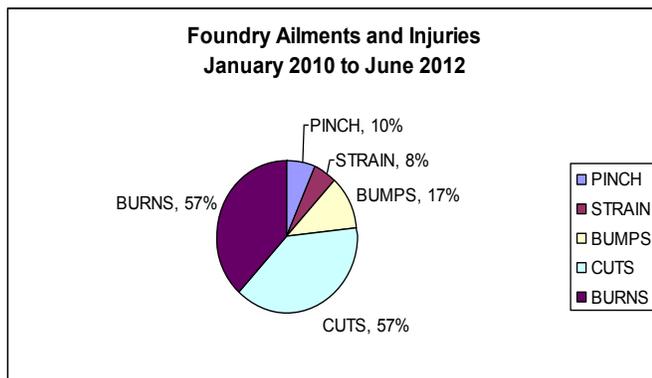
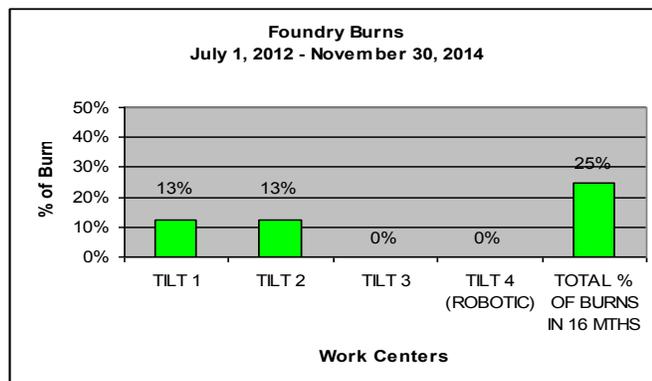


Figure 2. Elimination of burns in robotic cell after Project ICE





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