

Custom Grabs a New Solution to Risk & Efficiency

A well-recognized and significant risk in the mining and construction industries is working with suspended loads. This is exacerbated in underground sites where machinery and people compete for space in cramped areas with limited clearance.

While grabs (or grips) are a fairly common piece of machinery, most are off-the-shelf products which don't respond to the individual needs of the operator or the operating environment. At best they are functional. At worst they lack the ability to provide precision movement or control, further compromising the safety of people and materials.

The award winning Redigrip¹ is one such success story of a custom grip, designed and built specifically for Redpath Mining in partnership with Doherty Couplers and Attachments. Redpath had identified, during a pre-project risk assessment, an opportunity to improve the safety of the work by eliminating the need for the slinging of beams and columns during construction.

"The increasing demand for and interest in custom grabs is a direct response to the issue of safety," agrees Paul Doherty, technical director at Doherty. "Operators need a full range of movement and control to accurately position materials using grabs. Without this the job can take longer, accidents can happen and materials can be damaged."



Andy Leask, mechanical engineering manager at Redpath Mining confirms that partnering with Doherty was a good decision. "Paul and the crew at Doherty were most receptive to our idea of developing an "I Beam" grip for our underground infrastructure job."

Through the combined efforts of Redpath, Mecad Engineering, Doherty and M&J Hydraulics, the concept advanced into a hydraulically controlled beam manipulator which was able to grab “I Beams” up to SWL 1.2 tonnes and manipulate them with: 360 degree rotation; 40 degree side tilt left and right; 140 mm side shift; 180 degree primary tilt; 600mm of telescopic extension; and provide a reach of over 8 metres.

The results of their efforts and investment were quickly proven in the field. “The project was safe, fast and efficient,” highlights Leask. “And we completed on time and under budget in an environment that is not conducive to either!”

A similar innovation came about through discussions with a major Australian excavator distributor explains Doherty. “We were asked to design a unit for the removal and replacement of concrete “stop logs” which are used to control water levels in many Australian water reservoir systems.”

The resulting custom grab, designed to operate underwater, featured a parallel swing side shift as well as full tilt and rotate capabilities. It also incorporated specially designed clamping pads to allow quick reconfiguration to enable the grab to position bridge beams.

Both operators and manufacturers agree there will always be a place and a need for off-the-shelf grabs. However, the fact we can now achieve a more effective solution that enhances the safety and efficiency of projects is a major advance for mining and construction industries.

ENDS

Reference Info:

¹http://www.grc.org.au/conference/01_cms/details.asp?ID=4#292