Resin Bolt Timer
Xstrata Zinc – Mount Isa Mines

The Problem or Initiative

Resin bolts require a set process for their installation that is time critical. Failure to comply with the manufacturers instructions may result in inadequate mixing of the resin or incomplete setting time which results in inadequate bolt tension capacity or the bolt can fall out of the ground at the end of installation.
Resin bolts had in the past fallen out of the backs when the installation time was not adhered to as per the manufacturers standards. The two time critical aspects of the installation are Spin time and Holding time. Spin time refers to the time required to spin the bolt to mix the two chemicals that form the resin. The Hold Time refers to how long the bolt must be held by the rig before the resin can support the weight of the bolt.

The Solution

The Resin bolt timer is crucial to the safe operation of installing resin bolts at the Xstrata, George Fisher Mine. This very simple idea came from the identification through route cause incident investigation where it was realised that operator judgement is variable in estimating cycle times.

The Resin Bolt Timer is not much larger than a mobile phone and consists of a button which when pressed illuminates three LED's in sequence. The first timed LED provides the correct time for the "Spin" cycle. The second the "Hold" cycle and the third confirms when the operator can move to the next task.

The resin bolt timers have been fitted to each jumbo cab within the mine in the operator's field of vision when bolting. Electrical engineering and operations developed the idea, design and have manufactured the timers all within the George Fisher Mining Team.

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110mm*75mm*90mm

Benefits/Effects

Since its inception no incidents have occurred. All rigs have the device installed. No hard data can be provided at this stage to demonstrate an effect as the device has been effective and no further instance of poor installation has occurred. The device does not negate the need for correct training, supervision or pull tests however it assists the operator in eliminating judgement from the task.

Transferability across Industry

The device can be used at all mines requiring resin bolting with minimal cost and very minor manufacturing and installation cost. Due to the ability for the device to be set to various times it can be applied to other tasks where time is a critical factor in task.