

Addressing excavator safety on the construction site

In their standard form, excavators are not presently equipped with crane-type instrumentation, and are therefore limited in their pipe lifting capacities, according to Plantmech.

In response to this limitation, Plantmech is importing the 2RCI system – a rated capacity indicator which improves the safety of excavators when lifting suspended loads.

The system is fully programmable to Australian Standard AS1418.5 that allows the full use of excavators variable capacity load charts when used in lifting applications as well as AS1418.8 requirements.

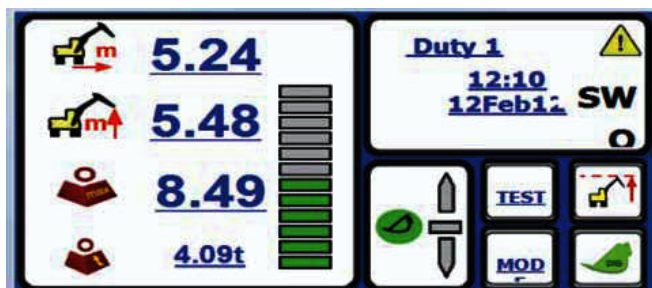
The AS1418.8 Cranes, Hoists and Winches – Special Purpose Appliances sub-committee provides guidance on the use of special purpose appliances, such as sideboom pipelayers, excavators and other earthmoving equipment to lift freely suspended loads.

In an article from the April 2011 edition of *The Australian Pipeliner*, AS1418.8 representative Andrew Cook said that while developing the standard, regulators on the sub-committee were particularly concerned about the use of earthmoving equipment as cranes because the equipment did not have the same level of safety equipment for lifting that cranes have.

Plantmech Director Mike Davis, recently spoke with *The Australian Pipeliner* about these current safety limitations of excavators when manoeuvring pipe on a construction site, and the best ways to ameliorate this situation in the face of increasingly stringent OH&S regulations.

How does the 2RCI system address safety concerns when manoeuvring pipe with an excavator?

The 2RCI brings crane-type safety instrumentation into an excavator, thereby allowing the operator to view all the required information for safe lifting on a screen plus optional motion cut-outs when reaching set limits.



An image of the 2RCI system, showing measurements of excavator load capacity.

Why have the new national work health and safety (WHS) laws made the use of such a product paramount to the safety of operators and workers in the pipeline construction industry?

This type of system is not mandatory as the AS standards have done an excellent job of ensuring safe limits. However, with the new WHS laws, the duty of care of the employer is greatly increased.

In the case of an accident, the employer needs to show that they have met their duty of care obligations by doing everything possible to ensure operator safety. The benefit of this system is that the operator now has real-time information of whatever the machine is lifting and will warn operator, and activate motion cut-out before overload occurs. Risk is therefore reduced.

Once the product is attached to an excavator, is it comparable and/or better than using a crane for the same task?

The instrumentation is comparable to crane safety systems. In a lot of lifting

situations on pipeline and construction sites however, it is not possible to use a crane.

Benefits of the 2RCI system

- » Crane-type instrumentation for excavators, at a reasonable cost;
- » Easy installation and programming;
- » Assists in meeting 2012 WHS obligations;
- » Reduces safety risk for owners and employers; and,
- » Allows the excavator to be used within its safe lifting capacity limits throughout its entire working range.

Plantmech is the holding company of Premier Rock Machinery, and has been established since 2002. The company specialises in hydraulic modifications and the supply and installation of safety systems for earthmoving equipment. P

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2RCi

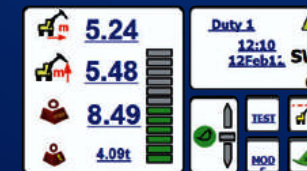
The Product 2RCi is a new approach to excavator Safe Load Indicators. The system offers a novel and unique touch screen display ensuring all the required information is presented to the operator in a clear and concise manner.

The 2RCi is designed to be LOLER compliant. Utilising angle sensors on the boom and dipper arms with a pressure switch on the hydraulic lift cylinder for the boom.

The Principle Utilising angle sensors on the boom and the dipper arm the system is able to ascertain the position of the load being lifted. Combined with information from a pressure transducer on the main boom lift cylinder the system is then able to ascertain the load versus the moment of the machine and give a true safe working load for that load position.

Features

- Crane type instrumentation for excavators
- Fully programmable to AS 1418,5
- Allows full use of machines variable load chart
- Assures equipment is being used safely within its limitations
- Real time display
- Hookload
- Maximum SWL at current radius
- Hookheight
- Radius
- Bar graph showing percentage of SWL
- Multiple duties i.e. overside, overfront and dynamic
- Height limiter with optional motion cut out
- Option Minimum radius protection
- Audible and visible alarms
- Motion cut out on overload
- Dig depth monitor



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