

A U S T R A L I A N

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- 2013/14 Directory of bulk handling engineering firms
- Jacobs buys SKM for \$1.3bn
- Two peer reviewed papers
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Precise Train Loading and Weighing solutions... pg 56

Meridian enters grain sector

Industrial weighing and loading specialist Meridian Engineers has successfully delivered several projects for GrainCorp over the last 12 months, in addition to projects for Brookfield Rail and FMG.



Static point load calibration of TrackWeigh system at Condobolin in NSW.



Radio frequency wagon identification for TrackWeigh system at Condobolin, NSW.

In conversation with ABHR, Meridian Engineers' managing director, Dr Anthony Pruiti, detailed important elements of the GrainCorp projects which comprise its first ever foray into the sector.

Meridian installed outbound weighing systems at regional grain train loading terminals in NSW and inbound weighing systems at port facilities in NSW and Queensland.

"The outbound weighers ensure efficient and optimal loading into individual wagons prior to leaving site," said Dr Pruiti.

"GrainCorp uses the inbound weighers at their port facilities for reconciling inventory. They provide the ability to get split train weights which is difficult to achieve with the existing belt weigher technology. While good for measuring a total train weight, it's not easy or practical to weigh wagon weights individually with the old technology."

At GrainCorp's Parkes train loading terminal, Meridian installed a Train Loading Improvement (TLI) system.

The TLI system, developed by Meridian since the company's formation in 1987, allows precision batch loading of trains.

"The Parkes terminal is unique in that it uses a steel bin to load trains where most other sites use concrete silos," explained Dr Pruiti. "Steel bins enable us to use our TLI systems that monitor in real time the grain weight flowing into a wagon. This

way the site can have confidence in the final wagon and train weights when the train is eventually weighed."

"GrainCorp has installed Meridian wagon weighing systems to optimise the rail loading process," explained Kevin Doggett, development manager business improvement, GrainCorp. "This has proven to be an effective tool to deal with the variables of multi-wagon types, various commodities, grades of commodities and

track restrictions that are present in our network. During the past 12 months GrainCorp has started to roll the systems out in the ports with the Carrington terminal expecting to achieve NMI certification by mid-October.

"By optimising the loading, GrainCorp is reducing its customers' supply chain costs and with NMI certification they will have transparent stock status information at the point of receipt."

How the TLI system works

In terms of the key components of a Meridian TLI system, firstly, there is an inbound weighbridge that records the starting weight of each rail wagon. Wagons are automatically identified by an RFID system that enables the TLI system to determine the required target load for the wagon when it arrives at the loading chute.

The train loading bin is instrumented with Meridian's proprietary bolt on column load cells. These allow the TLI system to accurately measure the mass inside the bin. More importantly, the TLI system is able to resolve accurately (within 100kg) the loss of weight inside the bin as a rail wagon is being filled. This allows the system to control when the loading chute should be closed to achieve the target mass.

For systems where the loading bin is being filled at the same time, it is also necessary to use a conveyor weightometer to measure the amount of material being fed to the bin while the wagon is loaded, as this needs to be added to the wagon weight measurement.

An outbound weighbridge is then used to confirm the TLI system has accurately loaded all wagons in the train. Aiding matters, Meridian is a leading manufacturer of in-motion train weighbridges in Australia.

According to Dr Pruiti, most of Meridian's hardware manufacturing and all of its software development is done in-house.



The heart of the TrackWeigh system, Meridian's patented bolt on load cell, at the Carrington terminal in Newcastle.



Automatic split train weighing on multiple lines at the Carrington terminal in Newcastle.



Site of a Meridian TLI system at GrainCorp's grain loading train facility at Parkes in NSW.



Dual TrackWeigh system at GrainCorp train unloading facility at Fisherman's Island in Brisbane.

In Western Australia, at Gutha in the mid west, Meridian has installed a high speed weighbridge system for Brookfield Rail as part of that organisation's \$550m upgrade project.

The weighbridge is part of an asset protection supersite to ensure trains travelling on the rail network are correctly balanced and also not overloaded.

"The weighbridge was calibrated and tested for Brookfield Rail and found to

weigh individual loaded wagons with less than 1% error over a speed range of 20 - 80kph," said Dr Pruiti. "It was found to weigh loaded trains with less than 0.2% error over a speed range of 20-80kph."

Turning to the Pilbara and iron ore, Meridian has installed a train loading improvement (TLI) system at Fortescue Metals Group's (FMG) Solomon mine.

Dr Pruiti said that "this is a fully

automatic train loading control system that has the ability to control individual wagon loading to within 2.5% of 160t target loads even with peak loading rates in excess of 5 tonnes per second."

The Solomon TLI builds on Meridian's extensive involvement with FMG. Australia's third force in iron ore now uses Meridian technology at all its mines. ■

Contact: www.meridianengineers.com.au

CARGO LOADING WITH CONFIDENCE & ACCURACY

MASS AND VOLUME INFORMATION SYSTEMS (MAVIS)

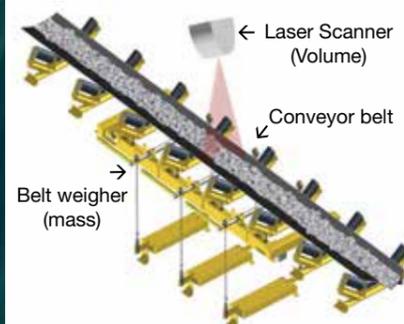
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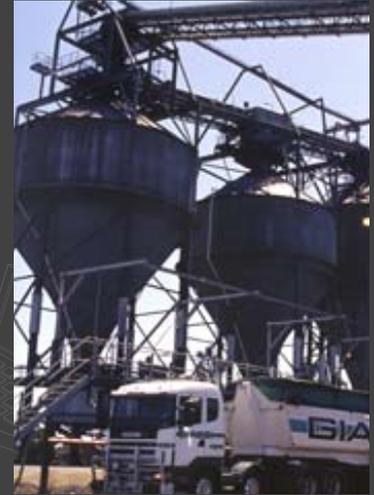
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Bulk Density on the Fly!





Big ON Innovation



Everything's big in Australian mining. Big dollars are being invested in very big projects. Mining and logistics companies help protect their investment by installing innovative products like Meridian's high speed train weighing system (HSTWS) and the award winning train loading improvement system (TLIS). Their legally approved HSTWS will accurately weigh 30,000 plus tonnes of iron ore worth millions

of dollars at 100km/hr yet still identify any single wheel in a train that is overloaded. Incredible. And the TLIS will optimise the train loading process so it's loaded to the correct tonnage. Every time. Both systems are easily retrofitted to existing facilities - not just reserved for new projects. That's a BIG benefit. Contact Meridian now and weigh up their advantages for your operation.



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