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## **Load Volume Scanner for Mulch Load Measurement**

Our Load Volume Scanners (LVS) measure loads of loose bulk material in open tray truck and trailer units. The LVS provides a direct volumetric measurement and overcomes the problems of determining load volume by other methods such as counting loader bucket scoops, manually levelling and measuring or weighing. These notes provide supplementary information to that available on our website at [www.tallyclerk.com](http://www.tallyclerk.com).

### **Measuring Mulch**

Our scanners are used in New Zealand by landscape products manufacturers who produce mulch, compost, potting mix etc and used to measure the outgoing processed product as well as incoming raw materials such as wood-chip, sawdust, bark, sand and so on.

We know that a common practise in the US is to level and measure mulch loads (i.e. rake load level to marked height) in bigger trailers. Measuring every load this way is very costly in terms of time/manpower requirements. It is also not favourable to the supplier to stand on the loads and rake them level as walking all over the load actually pushes the load down, reducing the overall volume. Our experience is that if a large trailer of mulch or similar material is loaded normally, measured with a scanner then levelled and measured manually and then measured with the scanner again, the drop in volume is a measurable quantity. There are also safety issues with walking around on top of a loaded trailer.

Scanner measurements give an accurate measure of load volume in just a few seconds and the measurement process is non-contact so the load volume is not affected by the measurement.



**Typical bark/mulch truck and trailer units (older model gantry style scanner)**

### **LVS Usage**

The LVS works by comparing the shape of an empty truck against the same truck loaded to compute the load volume. The normal way to use the scanner is to scan the empty truck/trailer into the system database. After that each load only requires one scan. Vehicle identification can be manual (using touchscreen keypad) or RFID tags can be fitted to the trucks. Typically a mulch supplier would tag their own trucks but use manual identification for other trucks that come to their

yard to pick up loads. If trucks are fitted with ID tags then scanner operation can be fully automated, requiring no driver/user input. In this case the outside LED display sign can display the load result to the truck driver before they leave. However, it is also possible to configure the system to collect additional load information, such as the product type, customer/destination, order number etc. In this case the system automatically prompts for this information on each load measurement and manual entry is required via touchscreen keypad.

The scanner saves the load records as text files. These files can be accessed by downloading on to USB flash drive or via direct computer network connection or via GSM modem/internet-server for remote access. For a permanent installation in a yard, typically record files would be accessed via direct connection to the office computer network. We provide a software utility that can process the load records from the scanner and generate simple reports in Microsoft Excel®. The log files are also readily accessible to other cashbook/accounting systems. A little custom software programming may be required to match the data format to your particular accounting package.

### **Portability**

Our new scanners are of a fold-down design and come with a concrete mounting block with lifting points for crane truck lifting and slots for forklift lifting. Complete unit weighs approximately 2.7 metric tons (about 3 US short tons). Unit can be easily transported on a flatbed truck or in a 20-foot shipping container.



**Fold-down block-mounted LVS ready for shipping in 20-foot container**

### **Trade Use**

Currently our Load Volume Scanners have trade legal status in New Zealand and Australia. This means they can be certified for trade use in these countries. In other countries local trade measurement laws may mean that our scanners are not legally approved to be used for trade and should be used as “monitor only”. What this means in practise is that financial transactions should not be based on scanner measurements. However our scanners can be used to “monitor” truck loading and “check” operators are loading to desired volumes or check suppliers are supplying expected volumes. Measurements are just as accurate as for trade certified systems sold in New Zealand or Australia. Outside New Zealand or Australia we will supply LVS units as “Monitor Only”. But it is up to the operator how they apply the local trade measurement laws.

**Other Applications**

The primary market for our scanners is the civil construction/earthmoving industry and its suppliers (quarries). Our scanners are used on job sites to monitor truck loads of incoming material such as gravel, sand, topsoil etc and also to monitor outgoing excavated material. A scanner can be a valuable management tool on the jobsite for tracking vehicle movements, comparing total volumes excavated against survey quantities or total supplied volumes against supplier invoices, monitoring progress vs. targets, determining bulk densities or compaction/bulking factors and so on. In New Zealand where our scanners have trade legal status they are also used in quarries. This allows the quarries to sell by volume instead of weight.

**Installation, Training and Support**

Should you decide to purchase a scanner from us we will fully support our product and will absorb the cost of a trip to your site to assist with installation and train staff.

Adrian Ruthe  
Technical Manager