

# Box positioning: using reach-stackers

The APM terminal in Algeciras has recently been trialling an automated container position reporting system for use in conjunction with reach-stacker operations.

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container terminals of all sizes for improved efficiency and productivity, there is a growing need for on-site container position determination systems (PDS) to be fitted to all types of equipment – not just yard cranes. If certain types of container handling equipment are not fitted with PDS, there is the risk of containers being placed in the wrong slots – which defeats the object of a terminal's yard management system.

Some terminals only operate reach-stackers in "quarantined" stacks, but generally reach-stackers – and top-loaders – are used in all stacks within a terminal.

Installing PDS on reach-stackers has added technical complications because of the machine's configuration and its "low" high-point. A GPS antenna can have difficulty receiving the satellite signals when surrounded by container stacks.

The APM terminal in Algeciras has recently been trialling a system developed by port solutions specialists International Terminal Systems Ltd (ITS). The aim was to introduce a reliable - and technically simple - automated container position reporting system for use on reach-stackers and toploaders, which would be linked into the terminal's yard management system.

A GPS antenna is installed on top of the reachstacker's boom.



A reliable and simple automated container position reporting system for use on reachstackers has been developed.



A GPS receiver is located in the cabin.



The system is intended to:

- Report every completed move in real time.
- Report unplanned moves independent of driver action.
- Track the handling equipment in real-time.
- Allow real time update of the yard database to optimise yard utilisation.

The solution involved the installation of a GPS antenna on top of the reach-stacker's boom, and a GPS receiver in the junction box in the cabin.

However, when the reach-stacker's boom rises, the antenna changes position – and this can cause an "offset" problem, resulting in the container being reported in the wrong position. To counter this, a special linkage is fitted to the antenna, so that when the boom rises, the antenna moves accordingly.

Last month, the terminal completed a 1-week trial of the system – according to ITS, the trial showed "consistently reliable and repeatable positioning in a full range of operating and stack conditions".

ITS are also currently working on integrating their IR truck identification system

and security system to the reachstacker modules – enabling improved container movement and operational security on a terminal. **CM**

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