ICHCA International Limited

INTERNATIONAL SAFETY PANEL
TECHNICAL/OPERATIONAL ADVICE
NO 2

HORIZONTAL LASHINGS OF 40' AND 45' FREIGHT CONTAINERS

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HORIZONTAL LASHINGS OF 40' AND 45' FREIGHT CONTAINERS

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1. Introduction

The introduction of 45' containers has, for many Ports and Terminal Operators, raised new challenges, with particular regard to lashing access and method on board vessels. It is estimated that such containers now account for approximately 25% of the total container fleet globally. This, coupled with the introduction of 9'6" high containers exacerbates the problem.

Unfortunately when it comes to the practicality of lashing on board ships, cargo securing manuals, approved or not, offer little in the way as to how the lashing can be safely accomplished, if accomplished at all.

Where 45' boxes are stowed in the lower tiers on top of 40' hatches, in most cases little room is left to physically stand to perform the lashing. However, this is easily remedied by either plating welded extensions to the hatch edges where possible, or simply plan the vessel to ensure on deck 45' boxes are only stowed three high or above. Admittedly, this does not lead to an aesthetically pretty ship, but it does not interfere with access, or deck lashing arrangements.

As far as 9'6" containers are concerned, a cargo securing manual has not yet been witnessed to permit more than one 9'6" container (hence one only lashing extension), in any one vertical tier.

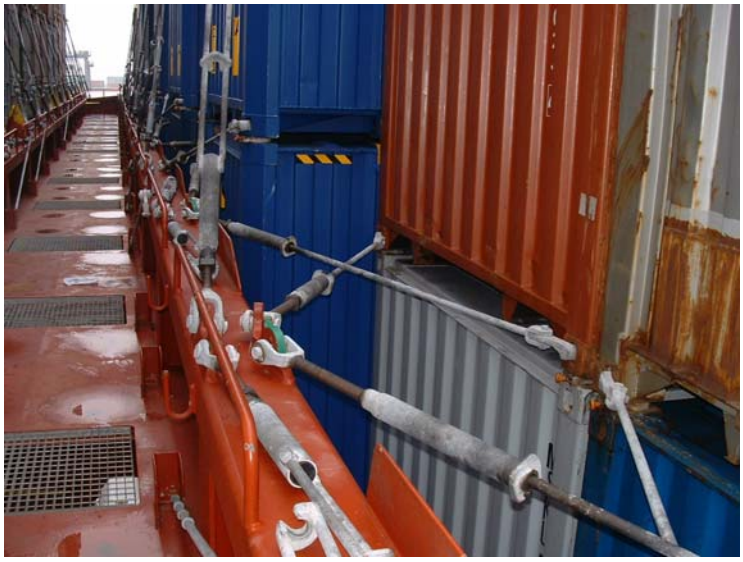
However, vessels are frequently planned with more than one 9'6" in a stack, requiring "a chain" of extensions that can only be positioned by climbing the doors of the containers or use of ladders.

Until such time longer (and hopefully lighter) lashing bars are provided, little can be seen to improve this situation at present.

2. New Ships, New Challenges

A large number of recently built vessels have taken into consideration the 45' phenomenon and are designed with larger hatches and covers. This of course, on many new ships designed with adequate access and good modern walkways, has reduced the hazards to crew and shore workers who lash these ships in a traditional configuration.

However, several larger container vessels (6,000 to 9,000 teu) have above deck lashing structures and platforms often two or three tiers. The container lashings are now required to be attached from each tier, horizontally (or as near as) to the container corner castings. Similar arrangements can be found at accommodation structures also. *See example below.*



3. Health and Safety Issues

Where 45' containers are loaded in these bays, lashing is invariably physically tolerable. However, when 40' containers are placed in these bays, they can be more than a metre away from the working platform. *See photograph below - left.*

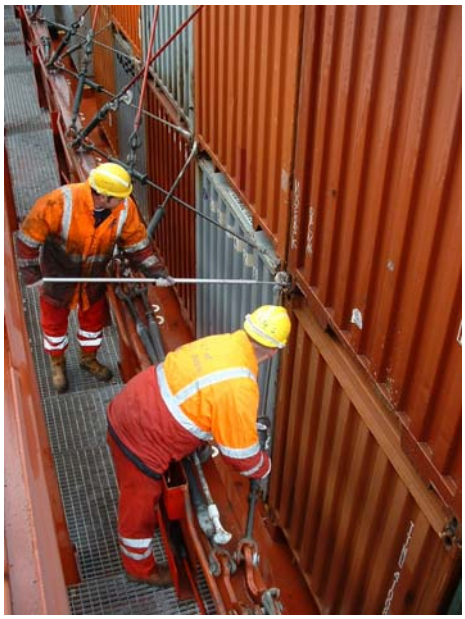


Photo A

Photo B

This requires labourers to hyper-extend to position lashing bars and attach bottlescrews, placing excessive strain on their backs. *See photograph above - right.*

Furthermore, where traditional crossover lashing is required above this level, the access platform is not close enough. On numerous occasions, labourers have been witnessed climbing over the platform handrails and standing on the vertical lashings to gain access.

4. Potential Controls

One large shipping line has, along with Felixstowe and Rotterdam, developed specialised lashing tools to assist in these areas.

The first tool was designed to act as a rest (on the principle of a snooker or pool table spider), and a lashing head locator. *See photograph below.*

Although this does not alleviate the posture required to locate the lashing, it drastically reduces the load bearing effort required. Photograph B above shows the locator being used and the postures adopted.

The second tool is simplicity in itself and some may have seen similar devices before.

By utilising a suitable length and diameter of alloy tubing with a stop bar, a lashing bar can be inserted to gain the extra height required.

However, it must be remembered that these tools do not provide the complete solution, or completely eliminate the risk of injury. This can only be further reduced by the correct planning of container stowage to ensure that containers are placed in the bays for which they were designed.

Further, should a vessel require 40’ containers to placed in 45’ bays on a regular basis, some consideration must then be given to welding lashing eyes to the hatch covers and utilising conventional lashing arrangements.

5. Future Developments

Due to the size of vessels and their hatch covers some larger vessels have reported they are experiencing fractures in the hatch covers or coamings. It is considered that the two structures are not flexing together with sufficient tolerances.

Next generation vessels are likely to have "floating" hatch covers. This will require any bottlescrew (turnbuckle) that attaches to a fixed structure, to have some form of integral shock absorber to allow movement. Initial health and safety concerns might be the weight of these bottlescrews and how they may be handled, but that is another challenge.

6. Acknowledgements

The author wishes to acknowledge the extensive work undertaken by the Marine Department, Nautical Section of Maersk Sealand and Roy Smith, Safety Manager at the Port of Felixstowe for the development and trials of these lashing tools.