

1. Safety Alert: Falling twistlocks during operations

Falling twistlocks have the potential kill or severely injure people. This safety alert combines several incidents to focus on this hazard.

2. The risk

Under typical design conditions, container twistlocks will remain in their corner pockets for the transfer of the container to the quay or stow. However, twistlocks that have become damaged, worn or have not been correctly maintained may fall from corner pockets during lifting operations.

Furthermore, correctly functioning twistlocks may still fall out if the corner pockets on the container itself have become sufficiently damaged or deformed.

The prime rule that people should never be under a suspended/moving load may not, on its own, provide sufficient protection as falling twistlocks may ricochet off a surface during the fall and travel a considerable horizontal distance.

Controls for these hazards are primarily administrative and challenging to enforce in a dynamic operational environment.

Failure of twistlocks to provide the expected securing may also increase risk of loss of containers at sea.

3. Incident: In 2023 a team leader at a member terminal was struck by a falling twistlock

It is likely that the head protection that he was wearing, saved his life. However the trauma was severe as can be seen in the images below. The injured worker agreed to images being shared to help raise awareness of this risk (figures 1 and 2).

The investigation concluded that the twistlock dislodged from a five high fitting, striking the vessel team leader. The twistlock became dislodged because the twistlock locator pin failed while loading into a blind cell on deck.



Figure 1 - injuries sustained as a result of being struck by falling twistlock. See “The National Tribune 2024, Falling dislodged auto twistlock struck deckforeman / team leader”
<https://www.nationaltribune.com.au/falling-dislodged-auto-twistlock-struck-deckforeman-team-leader/>



Figure 2 - protective headwear and further injury from the same incident



Figure 3 - failed twistlock

4. Unacceptable standards of securing.

A member terminal has identified multiple inappropriate securing workarounds. Three examples of such are shown in the images below. Near misses of twistlocks dislodging on deck have been observed; more may be going unreported.



Figure 4 - non-conforming twistlock securing workaround



Figure 5 – non-conforming twistlock workaround

5. Corner fitting integrity

- Risk of Twistlock Failure: Older twistlocks combined with worn corner fittings may not secure properly, increasing the risk of falling objects during movement or deck positioning.
- Ricochet Hazard: Even with procedures keeping personnel at a safe distance, twistlocks can ricochet upon impact.
- Fatality Potential: These failures create a high-risk, potentially fatal scenario for personnel.



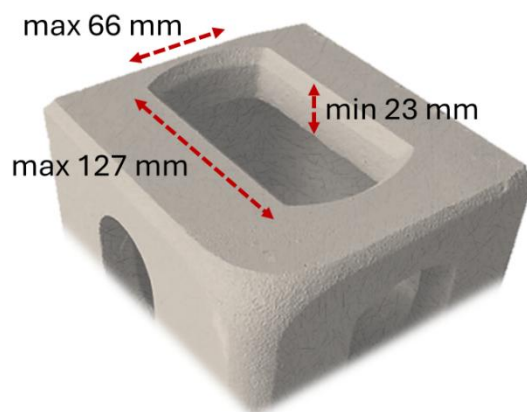
Figure 6 – example of movement giving rise to ‘fall out’ risk from defective corner fitting



Figure 7 – example defective corner fitting/pocket

5.1. Corner fitting aperture dimensions

The [Convention for Safe Containers Code](#) (CSC) code states that full engagement of securing or lifting fittings is precluded if there is any deformation of the fitting beyond 5mm from its original plane, any aperture width greater than 66mm, any aperture length greater than 127mm or any reduction in thickness of the plate containing the top aperture that makes it less than 23mm thick.



Do not wait for corner fitting apertures to reach critical dimensions

Figure 8 - corner fitting aperture critical dimensions

Callipers may be used to determine that the aperture remains within CSC critical dimension tolerances.



Figure 9 - example inspection of corner fitting aperture

Whatever the approach taken, the equipment should be fit for purpose, properly calibrated and operated by persons who are competent to undertake the task.

All inspection activity should be managed to control risk to those conducting the work. Using the hierarchy of controls approach and beginning with eliminating risk where practicable before considering other control measures.

Bureau International des Containers (BIC), the container owners' association, has a video on the importance of corner fitting critical aperture dimensions available at:

[Shipping Container Corner Fittings Dimensions | Critical Requirements for Container Safety](#)

5.2. Twistlock or corner fitting defect – generic procedure

A member has implemented a procedure to enable logging and segregation of defective components (see fig 10 below).

Prohibited Workarounds: makeshift fixes (e.g., cable ties, timber, paper) to secure twistlocks are strictly forbidden.

Quarantine: Containers with out-of-tolerance corner fittings are quarantined and removed from the terminal.

Eliminating the Problem: Previously, such containers were repositioned below deck or on deck level, this simply shifts the risk elsewhere and the practice has now ceased.

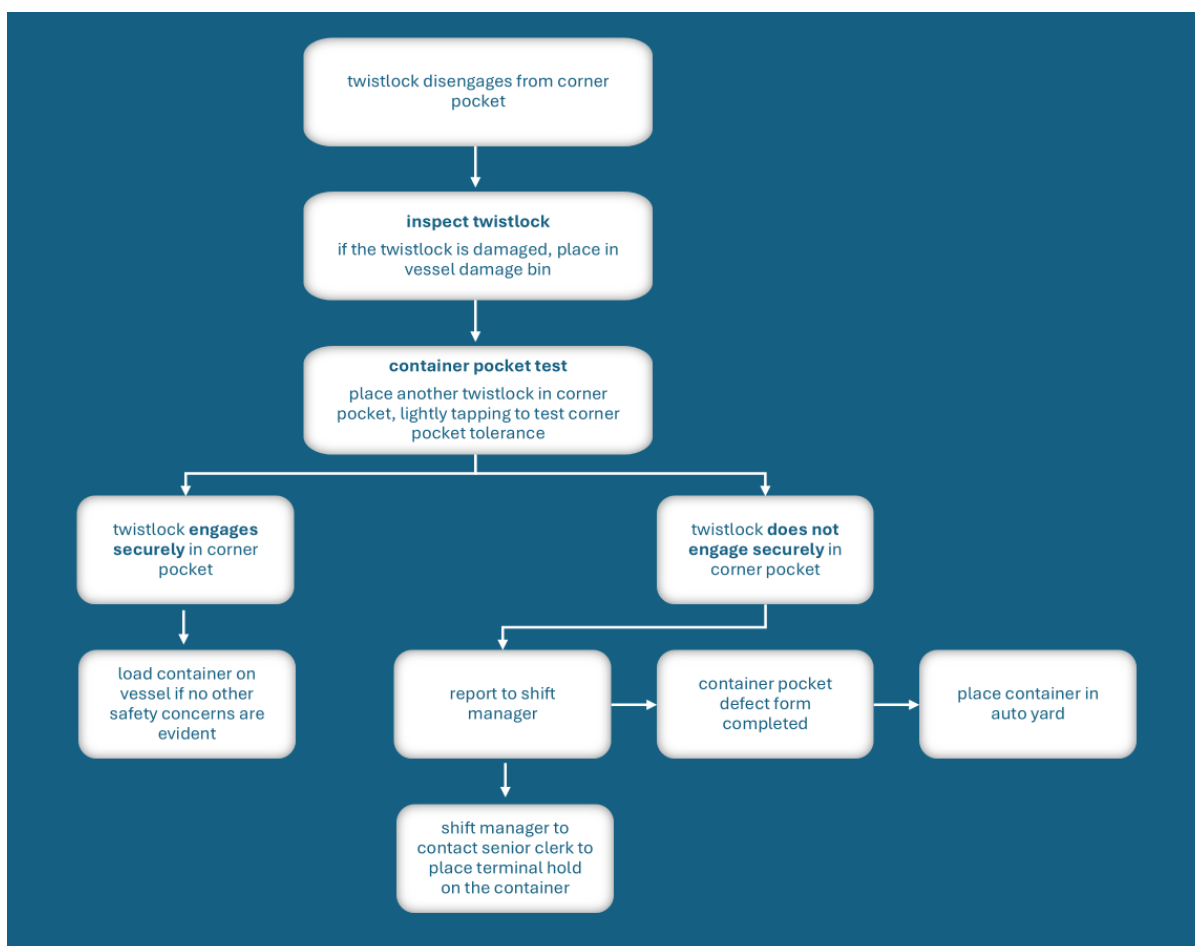


Figure 10 - logging and segregation of defective components example procedure

6. Other incident examples

6.1. Employee killed while lashing containers to deck

6 October 2019, a worker was standing on Cargo Hold Hatch 2, lashing 2-tier containers to the deck with a coworker. The shore crane operator lowered a container into position on top of the fifth inboard 2-tier container stack to start the third-tier stack at Hatch number 2.

A shipping container semi-automatic twist lock device at the bottom of a cargo container being set, located above and to the right of the employee, broke free, and struck him on the

head. The employee stumbled and fell approximately 10.5 feet at the unprotected main deck edge, coming between Hatch number 2 and number 1. He was killed in the fall.

LINK: https://www.osha.gov/ords/imis/establishment.inspection_detail?id=1436088.015

6.2. In 2021 the twistlock in the image below struck and killed an operative at a terminal



Figure 11 - Twistlock responsible for a work fatality

6.3. IMO III report 8/19, annex 1 lessons learned from marine casualties

Case 8, page 8 Very serious marine casualty: Twist lock falling on head, causing fatality reported that a damaged twist lock fell from a container on to a stevedore who was working in the vicinity. The stevedore sustained severe injuries and was declared dead during surgical operation. The short report notes that the cause was a damaged twist lock and that a contributing factor was that the casualty was not wearing relevant personal protective equipment. It concludes that lashing gear maintenance is important in reducing such accidents.

6.4. Further links

- Hurt by twist lock from a container:
<https://safety4sea.com/hurt-by-twist-lock-from-a-container/>
- Fatal injury by fallen twistlock
https://www.mardep.gov.hk/filemanager/en/share/publications/pdf/reports/mai190502_f.pdf

- OSHA Factsheet, freeing inoperable twistlocks

https://www.osha.gov/sites/default/files/publications/OSHA_FS-3583.pdf

7. Conclusion

It is recommended that readers with responsibility for, or a voice in, cargo handling safety:

- review their existing processes concerning falling twistlock and defective corner pocket risks, taking into account the hierarchy of controls methodology and learning in this safety alert
- amend their processes where appropriate
- communicate any process changes (e.g. prohibited workarounds) to customers and suppliers
- raise awareness of the hazards to their employees and other stakeholders

We welcome feedback from readers in particular those who have examples of procedures, learning or incidents on this topic that they would be prepared to share with the wider cargo and logistics community. Please contact secretariat@ichca.com.