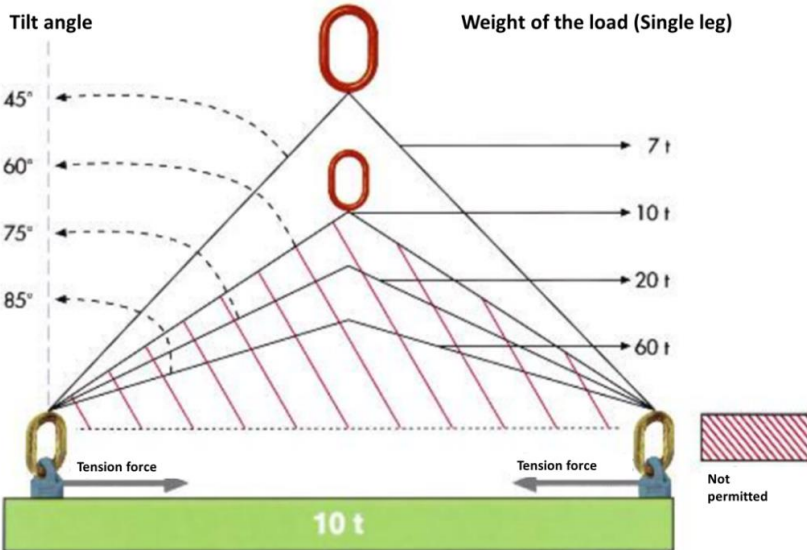




15 April 2024

# Safety Bulletin 4 /2024

## The right angle



Sling load for a 10 t cargo unit. When the «tilt angle» is 75°, the load on each sling or «leg» is 20 t!

Dear all,

G2 Ocean is committed to providing a safe and healthy work environment for all personnel involved in our operations. The purpose of our Safety Bulletins is to raise awareness of health & safety risks associated with cargo operations.

G2 Ocean works with several hundred stevedore companies worldwide. We believe that by seeking and sharing insights across company and country boundaries, we can prevent future incidents together. Descriptions of incidents will always be fully anonymised.

Lifting angles can quite easily be observed in port, but in all three incidents described here operations were not stopped, despite the unsafe lifting angles of the slings. By sharing insights about unsafe lifting angles, we can reduce the number of dropped lifts and injuries. If you have any feedback, please email us at: [safety@g2ocean.com](mailto:safety@g2ocean.com)

Best regards G2 Ocean Team

### Forces at play

Unsafe lifting angle was a common factor in three recent incidents:

#### Case 1:

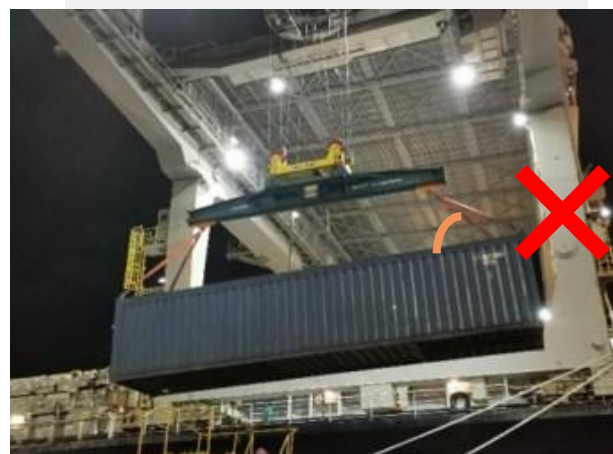
Steel bars were lifted using “basket” method. The slings started to slide and were cut by sharp metal bands keeping the metals bar together. The bars dropped and landed on the beam of the gantry crane.

#### Case 2:

Lifting points in the corners of a box-shaped cargo unit were ripped off during a lift. The investigation revealed that the slings were too short, and the lifting angle was estimated to 78°. For regular lifting operations the angle shall not exceed 60°. As illustrated on the left, the horizontal forces increase tremendously beyond this limit. The forces exceeded the capacity of the lifting points.

#### Case 3:

Regular ISO containers as shown below are designed for straight, 90° lifting angles only. The container lifting points may break at any moment, they are not designed to withstand horizontal forces.



## Case 1



**LOADING:**  
Basket lift method (left) of steel bars. The lifting angles are 90° and safe.



## Case 2



Lifting points of the cargo units were ripped off. The slings were too short, and as result the lifting angles were unsafe.



**DISCHARGING:**  
The same steel bars, basket lift. Because of the angle, the slings started sliding and the cargo almost dropped down on the quay.



**Insight** is one of G2 Ocean's safety behaviours. We expect this behaviour from our own employees, and everyone we work with, including crew and stevedores. All three incidents were observed by several persons, but nobody noticed the unsafe lifting angles. Share and seek insights on this topic!

### Consequences:



- Case 1: No damage to cargo. Delay to recover the steel bars.
- Case 2: Minor damage to cargo.
- Case 3: No consequences. The weight of the container was low and luckily the lifting points did not break.
- All cases: Potential fatalities due to dropped lifts.

### Lesson learned:



- Observe the lifting angles! It has a huge impact on the tension forces.
- During regular cargo operations, do not exceed the standard 60° limit (ref illustration previous page).
- For "basket lifts": To prevent the sling from sliding during the lift, the lifting angle must be 90°.
- Regular ISO containers are designed for 90° lifting angles only.
- All slings shall have a tag attached, check it for working load limit.
- Follow the G2 Ocean Life-Saving Rule: Never walk below suspended loads.