

Loss Prevention Bulletin

Carriage of General/Break Bulk Cargo on Container Vessels

Often vessels designed purely for the containerised trade are chartered for the carriage of general cargo, or indeed project cargo. The carriage of general cargo on such vessels can lead to several issues which need to be appreciated and addressed for the shipment to be delivered successfully to the discharge port.

The purpose of this Loss Prevention Bulletin is to highlight the areas that will need to be considered by Members that are planning to fix a cellular container vessel to carry general cargo.

General

When fixing a cellular container vessel to carry general cargo and to allow for the undertaking of appropriate action deemed necessary to protect the Member's/Club's interests, such as a pre-loading survey it is recommended that the Club be informed about such an undertaking. Additionally, the Member will need to contact the vessel's Flag State Administration and Classification Society to determine what documentary changes will be necessary to the vessel's statutory and Classification certification.

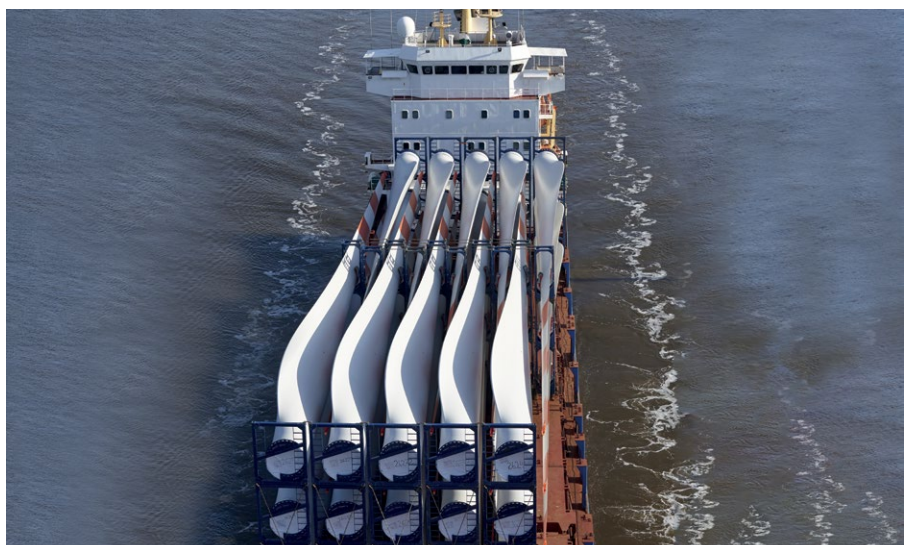
Should employment involve multiple voyages carrying general cargo, then statutory certificates may need to be reissued, particularly those detailing the vessel type, and possibly including the operator's International Safety Management (ISM) Document of Compliance (DOC). To warrant a DOC issue for the operation of general cargo ships, the company's Safety Management System (SMS) may need amending accordingly to include guidance on the loading, stowage and carriage of general cargo.

These changes may need to be verified by an additional external ISM audit of the office and vessel. The vessel's Classification Society may require reclassification of the vessel and possibly other surveys to confirm that the vessel can be reclassified for the carriage of general cargo. However, a single trip carrying such cargoes may only involve the issuance of an exemption letter for the voyage by the Classification Society.

In addition to possible changes to certification, other documents may require updating and resubmitting to the Flag Administration's Recognised Organisation (RO) for verification and approval.

In particular, it is most likely that the Cargo Securing Manual (CSM) will have no provision for the stowage and securing of cargo other than containers and therefore needs to be amended and submitted for re-approval. The stability book may likewise need amending. The vessel's Flag State and Classification Society will be able to advise their individual requirements.

When certification or documents require updating and re-issuing, verified copies of the certificates and documents, or exemption letters issued, must be on board the vessel before loading operations commence.



Hatch Covers

The weather tightness of hatch covers is a crucial aspect of the cargo worthiness of a vessel. The hatches, rubber seals, securing arrangements, hatch coaming internal drainage channels, and drains all need to be regularly inspected and maintained to prevent water ingress into the cargo holds. Cargo on container vessels, by its very nature, is protected by its container and therefore not susceptible to damage when a small quantity of water may bypass the hatch cover sealing arrangement and make its way into the hold. Consequently, the hatch covers on a container vessel do not undergo rigorous maintenance regimes to the same standard as those found on ships specifically designed to carry general cargoes.

Pontoon hatch covers are particularly susceptible to damage by their very nature, especially when stored on adjacent hatch covers during cargo operations when lashing equipment and permanent hatch cover fittings can damage the hatch rubbers. The rubber gasket retaining channels also suffer damage when handling the pontoons, especially when they are being refitted and are knocked against the ship's structure as they are being placed in their guides.

Some container vessels have labyrinth or swing seal arrangements fitted, which make it difficult or impossible to achieve a weathertight seal due to their complex shape and configuration.

The compression of a container vessel hatches onto the hatch coaming is assisted by the weight of the containers on them, so when there is no deck cargo carried, the additional compression assistance afforded is lost.



Some vessels, in particular feeder cellular container vessels, may have particularly low freeboards and are susceptible to shipping seas on deck during transit, therefore requiring additional care and attention in ensuring the hatch cover arrangements are sufficient.

When ultrasonic testing has shown a hatch cover to be non-weathertight, additional means of sealing the hatch, including Ram-Nek tape and sealing foam, may be used by the ship. In such cases, there should be an adequate supply of materials provided. However, these materials can fail in heavy weather and so their use on the hatch covers as the primary means of sealing is not acceptable to the Club and may invalidate Member's cover.

Water ingress can also occur through hold access hatches, mast house doors and hold ventilators, etc. These should similarly be inspected and tested before loading to ensure they can be made weathertight.

To summarise the above, when contemplating carrying general cargo on cellular container vessels, it is essential to ensure that all hatch rubbers are in place, in good condition and without excessive imprint.

All the securing devices must be correctly adjusted, operable and fitted before departure. Hatch coamings drain channels must be free of debris and drain pipes clear. Before loading, the vessel must prove the weather tightness of the hatch covers through testing with ultrasonic equipment.



Cargo Hold Bilges

On container vessels, the cargo is protected to some degree from water damage by its container. As such, cargo hold bilges may not be sounded with the regularity that they should be and pumping out of the bilges may not be done until they are found full.

When general cargo is to be carried on board, the vessel must ensure the full functionality of the cargo hold bilges. Gratings and strum boxes must be clear, non-return valves and the bilge pumping system functioning correctly, high-level alarms tested and bilges empty and dry before loading.

While on passage, bilges should be sounded twice daily and pumped out when water is found. During periods of adverse sea and weather conditions, the vessel must undertake enhanced bilge monitoring protocols to limit the effects of potential water ingress on the general cargo.

In addition, the source of the water needs to be investigated and rectified as far as possible.

Hatch and Tanktop Strength

The concentration point for the load-bearing strength of hatch covers and tanktops on cellular container vessels is at the positions where the container corner castings will sit on the container foundation sockets on the hatch covers and the doubler plates at the bottom of each cell guide in the cargo hold.

When carrying general cargo where the weight spread is over the hatch cover or the tanktop, there is a danger of exceeding the deck or hatch strength.

Consequently, it must be ensured that the maximum loading figure per square metre, as indicated in the vessel's technical information, is not exceeded. The maximum container stack weights cannot be used when determining the allowable hatch cover or tanktop loadings per container slot.

A vessel may compensate for weight distribution issues and exceeding deck or hatch strength by using flat rack and platform containers to create

a continuous flat platform by placing two or more units across the rows with the general cargo stowed on top. When using this method, these containers must have the necessary strength ratings and load-bearing capacities.

Cargo Stowage

Any maximum stowage heights specified on the cargo are not to be exceeded to avoid crushing the cargo at the base of the stow.

The susceptibility of fragile cargo items to damage due to excessive forces must be evaluated. Stowing these items in areas of high forces, like the deck extremities, near the bow, or towards the stern, should not be undertaken.

The presence of cell guides and other obstructions can make achieving a tight stow difficult, and the use of suitable dunnage may be necessary.

Lashing Points

On deck, the fixed container fittings (container foundations and lashing plates) for use as cargo lashing points should be carefully evaluated to ensure that they have the required working strength to withstand the maximum dynamic loads expected in the lashings.

Some lashing eyes are arranged vertically in the athwartships direction and their resistance to out of planeloads must therefore be verified before use.

Using hatch cover guides, stoppers, stacking supports, lifting devices for spreaders and cleating devices as points to secure the lashing arrangements must not be undertaken.

D Rings are available that slot into container foundation sockets; when used, it must be ensured that they are of sufficient capacity and the locking pins are correctly fitted.

In the cargo holds, it is unlikely that there will be any lashing points, thus requiring temporary measures to be installed. Cell guide uprights and supporting brackets are not designed to take localised loadings imparted from cargo lashings, and their use is not recommended.

When additional securing points, such as D rings, have to be welded to the tanktop or bulkheads, it must be ensured that these are welded onto strength members, with adequate weld thickness for the intended safe working load.

Such welds should be subject to visual inspection and pass non-destructive testing (NDT), ideally Magnetic Particle Inspection (MPI), though dye penetrant testing will suffice before use.

Where weld faults are detected by eye or NDT, the weld must be gouged out, re-welded and tested again.

Such additional securing devices must not be welded onto bunker tanks. Before commencing welding operations, hot work permits are to be issued in line with the requirements of the vessel's SMS.

Particular care with the reverse side of the welding site must be taken with fire watches posted who have access to suitable firefighting appliance. Many claims have arisen due to material on the reverse side of a surface being set alight during hot work.

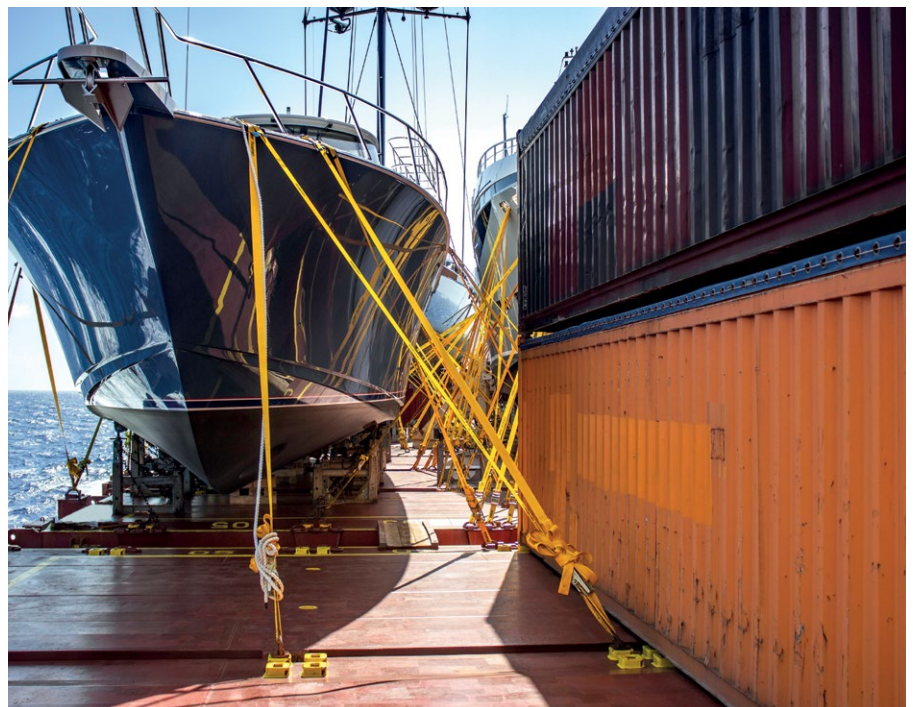
When the continuous flat platform arrangement with flat rack and platform containers has been used, the applied lashings must only be fixed to the containers' designated lashing points/hoops.

Lashing Equipment

Dunnage of suitable quality, quantity and strength for the intended use should be provided. On deck, due to hatch cover fittings it may be necessary to build a level platform on which to load the cargo. Similarly, in the holds, it may be necessary to shore and tom the cargo in the vicinity of the cell guides to achieve a tight stow. All such arrangements should be suitably secure and robustly constructed to withstand all expected loadings.

Container vessels will rarely have lashing materials suitable for securing general cargo. Adequate supplies of certified lashings of an adequate Maximum Securing Load (MSL) suitable for the task should consequently be supplied to the vessel in advance.

It must be ensured that the personnel involved in securing the cargo are familiar with the use of the equipment; in particular, **bulldog type grips must be applied correctly** with the saddle component on the live side of the wire.





Stability

Container vessels, by their very nature, are designed to carry large quantities of cargo on deck.

Subsequently, to ensure the vessel will remain stable, even with a high load on deck, they are designed with a large KM.

Carrying heavy cargo in the bottom of the holds or the holds and just on top of the hatches could lead to a low centre of gravity and a large GM, making the vessel uncomfortably “stiff” in her movements in a seaway.

Such a vessel will be subject to increased accelerations, inducing large dynamic forces in cargo and securing devices. Such increased dynamic forces are unwelcome and should be avoided. A maximum GM should be set by the vessel’s Classification Society and Flag Administration when they provide approval for the carriage of general cargo.

The stowage of cargo and its effect on the position of the vessel’s centre of gravity and the ballasting plan must be evaluated to avoid an excessive GM. The use of slack ballast tanks, particularly in double bottoms due to their large surface area, should be considered as a means of reducing

the apparent GM. Where fitted, roll reducing tanks can be used in line with the vessel’s stability book recommendations to minimise the roll period.

Experience of Ship’s Personnel

Before loading, the Master and crew must be provided with instructions regarding the cargo’s loading, stowage, and carriage. Crewmembers should refer to the contents of the vessel’s CSM and the latest revision of the IMO Code of Safe Practice for Cargo Stowage and Securing when determining the cargo stowage lashing plan.

Regardless, personnel working on cellular container vessels may be unfamiliar with the carriage of general cargo. It is therefore recommended that an experienced cargo surveyor be appointed to assist the Master and ship’s crew in ensuring that the cargo is loaded, stowed and secured in line with industry best practice.

If high-value project cargo is carried, it may well be the case that cargo underwriters require the attendance of a Marine Warranty Surveyor (MWS) to ensure that the cargo is loaded, stowed and secured in line with previously agreed procedures. In practice, if the Marine Warranty

Surveyor is not satisfied with the stowage and securing, then cargo cover will not be in place and their requirements must therefore be fulfilled before departure.

Accurate records of cargo work should be maintained, particularly the opening and closing of hatch covers due to precipitation.

Bills of Lading

The Mate’s Receipt (M/R) and Bill of Lading (B/L) must accurately reflect the condition of the cargo. The cargo surveyor should assist the Chief Officer and Master in clausing the M/R and B/L to accurately reflect the cargo’s condition.

Where cargo is stowed on deck, it must be confirmed that the contract of carriage allows such stowage and the B/L is suitably claused to reflect that the cargo has been stowed on deck.

Members are specifically referred to the Club’s News Item of **2 July 2019** about suitable wording for such clausing. If however Members are contractually obliged not to agree to such clausing then additional cover may be necessary and Members are referred to the Club’s guide to **Deck Cargo Cover**.

Sweat and Ventilation

The formation of condensation, known as sweat, on the surface of cargo in a hold, or the hold's structure, is not usually a concern on cellular container vessels. When general cargo that is susceptible to water damage is carried, sweat may form during the voyage to be considered. The guidance contained in the West of England Loss Prevention Bulletin on "Cargo Ventilation and Precautions to Minimise Sweat" should be followed to mitigate the formation of sweat.

Further Concerns

Depending on the nature of the cargo, when loading to or discharging from holds, fragile cargo may be easily damaged if it comes into contact with the cell guides that will be nearby. Similarly, some loads may damage the cell guides if they come into contact during loading/discharge operations.

Therefore, particular care must be taken to avoid cargo and vessel damage during cargo loading and discharge operations. It must be appreciated that the cargo operations in these circumstances will take longer than normal.

The use of weather routing services should be considered to avoid heavy weather, seas on deck and heavy rain to mitigate the risks imposed by these conditions during transit.

Members requiring any further guidance should contact the **Loss Prevention Department**.

Associated Loss Prevention Bulletins on the topic of container vessel cargo matters include

■ The Carriage of Reefer Containers



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