

Breakbulk / Project Cargo Loading

On Large Container Ships

The global shipping scenario (and we are only talking of the container trade) has seen a seesaw like action in the last decade or so. From dropping freight rates, to larger ships being built around the same time – we leave it to the business conglomerates to make sense of those trends.

One may wonder – why sacrifice multiple slots where containers could be loaded & replace that with one piece of cargo? Well, it is all in the mathematics of business. From quick turn arounds, to almost assured dates of delivery of the cargo & the fact that the freight rates of multiple regular boxes can't even closely match what one piece of project cargo can – it sure makes case for a business model !

But that is the business end of the opportunity. As a company involved in actually carrying out the loading and discharge surveys of these cargoes, the story gets more interesting when these actually have to be loaded.

Break bulk cargoes have many challenges with regards to



handling, stowage and securing & these challenges are compounded when they are carried on large cellular container ships.

Unlike general cargo ships / conventional break bulk cargo vessels - container ships mostly do not have their own cargo handling equipment and containers are handled by shore gantry cranes, which are limited in their capabilities.



To make matters further difficult, the meta centric height on these vessels is rather high, which further increases the forces of acceleration, there by requiring lashings to compensate these forces experienced and not to mention the limited lashing points available to secure the cargo.



Improper handling, stowage or securing would lead to a range of problems for all concerned parties, to enlist a few:

- 1. Damage to cargo*
- 2. Damage to vessel*
- 3. Damage to containers*
- 4. Time lost for handling damaged cargoes (if that is the case)*
- 5. Project delays*
- 6. Delayed vessel schedules*

These damages / claims could run into millions of dollars to the shipping line.

Careful planning of Stowage, Lifting and Securing, without causing delay to the vessels schedule now becomes the top

priority to the container line. Remember, these vessels are originally designed just to carry containers!



In most cases out of the box solutions have to be employed to execute the operation. Let us delve further into 3 important stages of the operation.

Stowage planning:

Detailed technical drawings should be obtained from shippers / manufacturers of the cargo along with photographs. In addition to the basic dimensions of length breadth and height, the technical drawings must contain (as a minimum)

- 1) Information related to center of gravity of the cargo, lifting points and lashing points.*
- 2) Details and dimensions of the cargo base and their locations.*

This information is critical in planning the stowage and loading operations. The location and position of stowage is decided based on the provided details.

Planning the stowage is critical as it sets the base for the loading operations. Number of slots required to load the



cargo, number of flat rack containers required, load distribution on the flat rack containers, dunnage requirements, availability of lashing points, etc. maximum stack load and racking loads on the containers also need to be evaluated whilst planning the stowage.

Lifting and loading operations

Based on the technical drawing and physical inspection of the inspection of the cargo, the required lifting material, slings, shackles, belts, etc need to be carefully planned.

This process involves a careful study of the technical drawings, limitations of the equipment used for loading (RMG, mobile cranes, floating cranes) and calculations to decide on number, length, loads and lifting angles.



Securing for sea

The quantity of lashing required to ensure that the cargo safely arrives at her destination is based on a scientific method.



This involves calculation of the transverse, longitudinal sliding forces and the tipping forces that the cargo is expected to experience during the sea passage. Based on this data, the lashing requirements are proposed and lashing forces are calculated. Care should be taken in assuming the maximum securing loads and the frictional quotient.

To summarise the above – loading of Break Bulk/ Project Cargoes on Large Container vessels requires a very methodical approach because one single let up can lead to massive claims, which, of course are never ever desirable!



About the author

Capt. Sebastian Dlima has about 30 years of experience in the shipping industry and has spent nearly 13 years of shore experience in the surveying field. This includes his time with a leading Classification Society, regular surveys for International P&I Clubs, Hull & Machinery and Cargo Underwriters. He is currently a Principal Surveyor and Head of Technical Services at Offing Marine & Offshore Consultants

He has been involved with handling break bulk cargoes on container ships and in the last 3 years has safely executed break bulk cargoes on large container ships, amounting to a total of about 1.3 million cubic meters ranging from a maximum length of 30 meters to a maximum weight of 115 tons.



Captain Sebastian Dlima

Email: surveys@offing.biz

Website: www.offingconsultants.com

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Offing Marine & Offshore Consultants (A Business of Offing Group Private Limited)
Office No.311, 3rd Floor, Banarasi Heritage, Behind Inorbit Mall, Mind Space, Malad West, Mumbai-400 064.



www.offingconsultants.com



+91 98338 78498 / +91 99300 04978