

6. Cross Currents 88 / G2 Ocean AS - “Spyder Netting”

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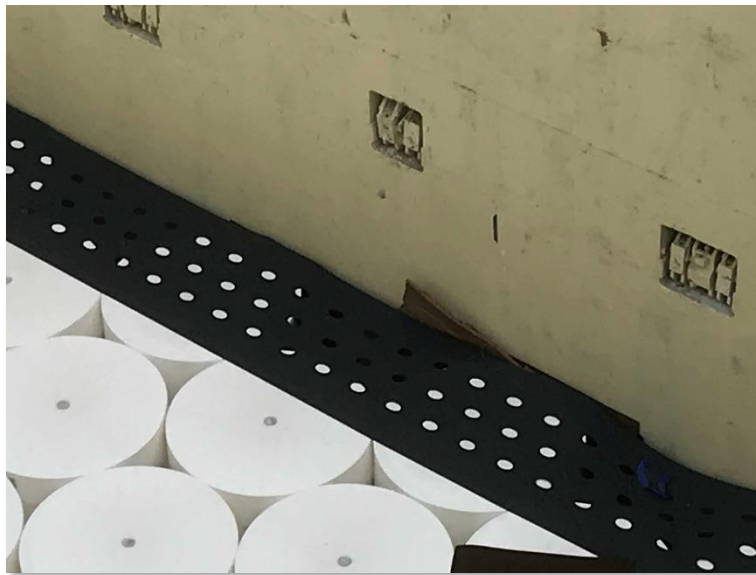
the challenge

When paper reel products are loaded in the cargo holds of breakbulk vessels, the stowage results in gaps between the cargo, particularly along the edges of the holds where the cargo meets the bulkheads. These gaps present a significant fall risk to stevedores working in the cargo holds. The gaps can extend many metres down through the cargo and, unfortunately, falls into these gaps have resulted in fatalities and severe injuries.

To address this issue, the mission was to design and implement a fall barrier system that could be applied to these gaps within the cargo stow.

The solution needed to:

- Reduce the risk of falls, or minimise the potential for fatality or serious injury in the event of a fall.
- Provide adequate protection without compromising air circulation. When carrying paper products ventilation is important for cargo care, so the solution should not restrict airflow through the cargo.



- Be light-weight and simple to install. The simplicity was important in order to prevent additional risk to stevedores during the installation process. It also had to cause minimal interruption to the cargo operation process.
- Avoid creating any physical damages/indentations/contamination to the cargo.
- Be a cost-effective solution, avoiding financial barriers to enhancing safety.

the innovation

The solution, “Spyder Netting”, is a thin layer of plastic film netting, which can be rolled out across the gaps and secured between layers of cargo. The material behaves much like a spider’s web - light, strong, and stretching under impact load.



This innovative material has many unique features:

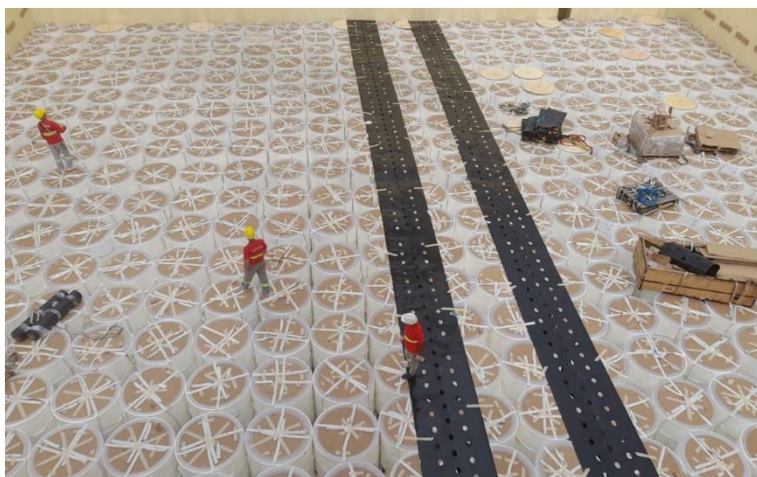
- Thin profile – Spyder netting material has a thin design which prevents indentation of pressure-sensitive cargo.
- High impact resistance – the netting withstands impacts from a 100kg weight falling from a height of 3 metres. The materials used have a high degree of durability and strength.
- The stretch properties ensure a low-impact deceleration of the falling person.
- Die-cut hole pattern – the web material is manufactured with circular cut-outs which allow airflow to be maintained.
- No specialist installation fittings, the netting is held in position by the weight of the cargo itself.
- Roll packaging – the material is supplied in roll form for a simple, intuitive, and fast installation by the workforce. No special equipment is required. Simply roll the product out like a mat.
- The material is fully recyclable.

how it was implemented

Breakbulk shipping company, G2 Ocean, approached Cross Currents 88, as experts in plastic materials technology, to assist with a solution to this safety challenge.

Cross Currents proposed two designs, both meeting the strength requirement, but physically different.

The product needed to capture the confidence of the stevedores in terms of its effectiveness, but also their support for the installation process. Working together with G2 Ocean's stevedore and terminal partners in the US and Europe, live testing was conducted onboard vessels using several different specifications of materials. During the tests a 110kg dummy was pushed off the top of the cargo, free-falling 2.9 metres into the netting. In all tests, the netting successfully arrested the fall. Following further input from G2 Ocean's stevedore and terminal partners, we were able to find the preferred solution.



result

The project resulted in a product that removes or minimises the potential for fatalities and severe injuries resulting from workers falling into these gaps in the cargo stowage.

The product is easily delivered and installed in the cargo holds, without the use of specialist equipment. The solution does not compromise the care or condition of the cargo.

- Workers feel more secure and confident in their working environment.
- The project has created genuine cooperation and goodwill between G2 Ocean, their working partners, and Cross Currents 88.
- Union groups, ports, and individuals have expressed appreciation for the program.
- The product is regularly employed by G2 Ocean, in the carriage of paper reel products.

conclusion

- Lives have been saved. Soon after the adoption of the product, Cross Currents were personally thanked by a stevedore in Italy, who's fall was arrested by the netting. Since then, there have been several examples of workers who have fallen, been arrested by the netting and, completely uninjured, have been able to return to work. Previously, such falls would have resulted in injury or death.

- The objective has been successfully achieved. While it is almost impossible to completely remove these gaps in the cargo and the resulting risk of falling, Cross Currents Spyder Netting has minimised the potential for fatality or serious injury in the event of a fall.
- Working with a knowledgeable partner like Cross Currents, and involving the workers and other stakeholders has ensured all aspects of the challenge were considered and the end result reflected the concerns and requirements of all parties.
- Safety innovation does not have to be complicated, intrusive, or expensive. The simplest ideas, properly developed and executed between partners with a common goal, can be extremely effective.



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