

|| MODALINTA - SafLash

the challenge

The tasks of lashing and unlashng container ships contribute around 40% of injuries in container terminals. Many of these injuries are related to the physical design of the hardware and process but others are related to the slowness of the task and its sequencing, leading to time pressure, rushing and dangerous proximity to "the hook".

Little has changed with lashing since the beginning of containerisation.

Lashing tension is a significant contributor to container loss at sea through stack collapses.

Providing visibility and control of lashing tension will help the industry to eliminate this significant safety and economic problem.

A death in Port Botany was the impetus for the project. Many more workers have been injured and killed and containers lost overboard since, but we now have a practical system that can avoid the problems that underpin lashing.

Lashing also has equality implications. The job is quite physical and is seen as part of the reason for the lack of diversity in terminals. In many container terminals, lashing is the entry level job. The physical nature of the job tends to discourage women and older people to enter the industry.

the innovation

Our innovation, SafLash, is a new lashing system that will directly replace legacy lashing in new builds and the current fleet.

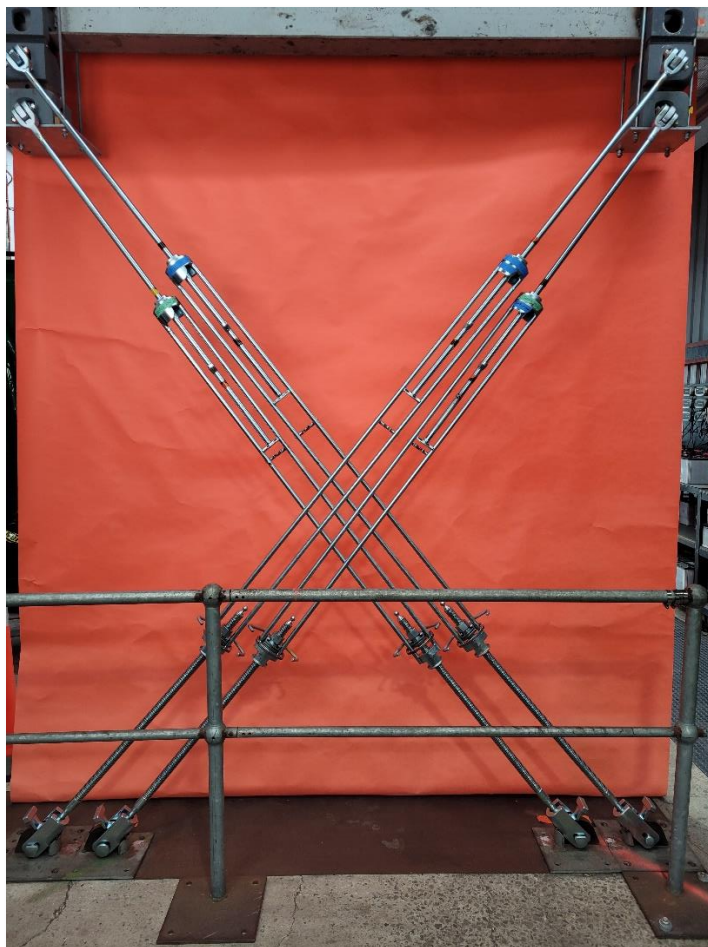
The system has three main features:

1. We have redesigned the lashing process to reduce physical effort, eliminate pinch points, eliminate hazards related to poor storage, and make 3-high (long) lashing as easy and fast as single-height lashes.
2. A portable impact driver does the tightening and loosening. This approach is much faster, reduces effort and allows a better balance of tasks on deck. The system delivers accurate lashing tension and eliminates guess work by reporting on lashing tension.
3. The process is three times faster, reducing "rushing" especially near the hook, which is a major cause of fatalities.

In addition to making the process safer and faster, it ensures, measures, and reports lashing tension. Poorly managed lashing tension is a significant cause of stack collapse and impacts containers lost overboard.

SafLash is a direct replacement for old style bottle screw lashing and can be retrofitted to existing vessels in a single port visit. It is designed and certified to the same standards as the lashing it will replace.

As well as improving safety, SafLash reduces time in port allowing 2-3 hours of slow steaming making it profit positive and environmentally beneficial as well.



how it was implemented

We recently conducted small scale demonstration trials in Singapore. It will take several years to rollout to the world's cellular fleet. The system is offered at no capital cost, by generating substantial savings in port time will be revenue positive for terminals and shipping lines.

Swire Shipping is our partner for early implementation, but we have many of the worlds other leading terminals and shipping lines involved.

Retrofits of existing vessels to SafLash will be done during a single standard port stay and the process requires no structural change to the vessel. We replace legacy fittings with new SafLash fittings made using green electricity. In most cases we recycle the materials from old fittings.

SafLash operation requires simple conversion training. This training of the world's lashers is a significant task. The training approach allows for shore based and on-vessel training. Part of the training involves the use of wearable tech to make sure that the trainees are not only fast but safe and working efficiently. We expect some terminals will make ongoing use of the wearables to detect things such as fatigue or dangerous work practises.

result

We have demonstrated that lashing can be made safer, easier and faster.

SafLash reduces the idle time from last line to first lift to 6-8 minutes, and the lashers will leave the vessel before the last box is loaded, eliminating most post-loading idle time.

We have reduced the effort of lashing; SafLash is three times faster than conventional lashing. The physical exertion is significantly lower and can be performed safely by people of smaller stature. We successfully demonstrated the process in Singapore and have signed our first trial agreement.

As an example, based on the results of the trials, a Post Panamax vessel (19 faces across)

System	Lashing team (number of teams x team size)	Duration (minutes)	Labour (minutes)	Lashing tension
Conventional Lashing	2x2	30.5	122	By "feel"
SafLash	1x3	9.5	28.5	Calibrated and reported

The portable tensioning device delivers consistent lashing tension, improving cargo safety. It also provides enormous undoing (breaking) torque, with no backlash when overcoming difficult lashes, as may be found after a vessel has sailed in poor weather. SafLash has properly engineered bearing surfaces and is less likely to jam under load.

The 3 high lashes are stored and operated using a counterbalance so that a 3 high is as easy and quick as a single height lash.

In addition to improving safety, SafLash significantly reduces labour effort and improves vessel turnaround time.

conclusion

Very few people who have lashed enjoy the experience. We have made some long overdue process and engineering changes to make the job safer, more efficient, and more pleasant.

SafLash has been certified by DNV. Recent improvements to the design will be re-certified as part of the demonstration trials. Sea trials are planned with Swire Shipping in New Zealand, and we are setting up manufacturing with German Lashing Robert Boch as our foundation manufacturing partner.

SafLash is much safer and faster, requires fewer people to complete the lashing task, and democratises lashing by allowing a much wider variety of people to undertake the job safely.

We also expect to reduce cargo losses. An impact driver sets the lashing tension, and this tension is recorded and reported via a cloud database. By deploying a system for measuring, recording and reporting on lashing tension, we expect to eliminate this significant cause of cargo loss at sea.

Further information can be found at <https://www.modalinta.com/>