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New passenger ship lifeboat design floated out of Norway



Special Report
International Cruise Ship Industry

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Passengers and crew can be evacuated with ease via a new shipboard evacuation process

A revolutionary new life saving initiative, designed for cruise ships and large ferries, is currently under development in Norway.

This concept is being driven by the founder of Kloster Rescue Systems (KRS), Magnar Reigstad, who studied the life saving efforts on several passenger ship incidents.

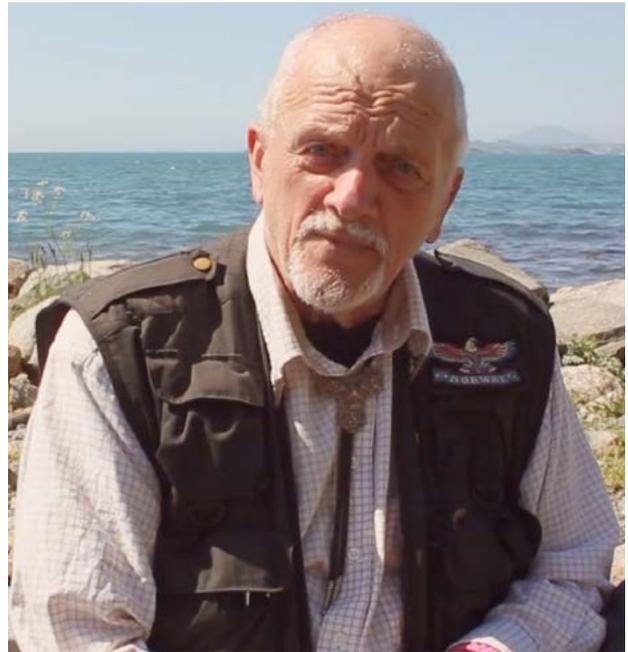
These included the 'Estonia' sinking, the 'Costa Concordia' grounding and the more recent 'Viking Sky' engine problem off the Norwegian coast, where life saving problems were quickly identified.

Under the current regulations, all lifeboats should be able to be launched with a vessel listing by up to 20 degrees to the side.

This was seen as an increasing problem with today's cruise ships getting larger with more people to evacuate in a short space of time. In addition, lifeboats and liferafts have been proved to be almost useless in bad weather, as evidenced by the 'Viking Sea' incident.

According to SOLAS regulations, a vessel should contain enough lifeboats to accommodate 37.5% of crew and passengers on either side. In addition, the vessel should be fitted with inflatable or rigid liferafts to accommodate 25% of those on board on each side of the vessel.

Remaining in an evacuation area, which is usually located on an upper deck, can be a very hazardous and frightening experience for passengers, especially in bad weather conditions. This trauma can be heightened when moving onto the deck, from where the lifeboats must be boarded (see https://www.youtube.com/watch?v=A-SXMQz_nvl&ab_channel=VadimChufarov)



KRS' founder and instigator of the new design - Magnar Reigstad

Boarding into partially covered lifeboats, common on passenger ships, is only possible from one side of the vessel, through an opening in the tarpaulin in the middle of the lifeboat.

Climbing on board and remaining in conventional lifeboats during an evacuation in high winds is dangerous both for the passengers and crew.

Lifeboats are also not designed to be fitted with enough engine power to be able to manoeuvre away from the casualty in a fast and efficient manner.

Conventional lifeboats also occupy a very valuable space on board a passenger ship, KRS explained.



Ships lifeboats - a completely new way of thinking



Ready for the order to 'abandon ship'

Lifeboat studies

Several studies have been undertaken down the years of traditional lifeboats, on each side of the vessel, which have been the norm for more than 100 years. It was recognised that lifeboats and tenders could not be launched if a ship was listing at more than 20 deg.

As a result, KRS came up with the idea of fitting covered lifeboats athwartships instead of the more traditional port and starboard sides.

In the case of an emergency, the lifeboats would be launched either from the side or from the stern of the ship, mandatory in the case of Polar expedition ships. Due to their location near the stern, lifeboats could be launched from either side, depending on the ship's list at the time.

Wide hatches would be fitted each side of the vessel adjacent to the lifeboats' location, or on the stern, through which they would be launched.

The evacuation room will be located inside the ship on one of the lower decks. Passengers will board the lifeboat from both sides of the room through wide falcon-wing doors, which are fitted along the side of the lifeboat.

Securely seated inside the lifeboat, passengers will prepare for a possible launch. By being briefed when they embarked, they will have been advised that the evacuation may still be aborted

by the Master, depending on the situation as he or she sees it.

In general, the Master will only order a lifeboat evacuation as a last resort but with the game changing KRS' lifeboats fitted, he or she will have a lot more room to play with. As soon as a potentially dangerous situation is identified, the Master can order the passengers to evacuate to the lifeboats; however, if the danger is averted, the passengers will be able to walk back onto the ship.

KRS new lifeboats can be mounted across the beam, in the stern, or in combination of both, depending on the size and configuration of the ship.

One of the latest incidents occurred on 23rd March, 2019 and concerned the 'Viking Sky', which was only a few metres away from hitting rocks off the Norwegian coast, following engine failure. Had the ship not regained power, hundreds of passengers and crew would most likely have perished, KRS said.

Lifeboats proved useless

In this case, the ship's lifeboats were considered to be useless, due to the bad sea and wind conditions. In an interim report on the incident it was stated; 'The Master had considered evacuating passengers and crew to the lifeboats but, given the environmental conditions, this was

considered to be too dangerous'. It took a team of helicopters 11 hours and 30 mins to evacuate 192 out of 915 passengers.

With KRS lifeboats on board, all 915 passengers and the majority of the crew could have been evacuated in about 30 minutes, the company claimed.

How it works

As soon as the Master has identified a potentially dangerous situation, he or she will sound the general alarm, notifying the crew and passengers to muster at the lifeboats.

Upon hearing the alarm, the passengers will move towards the evacuation rooms, located at the aft end of the ship on one of the lower decks.

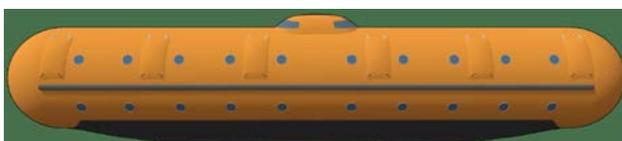
In the evacuation room, passengers will be given life vests by the crew before continuing down one of the four staircases to the lifeboats' location.

KRS will recommend a change to the regulations, so that instead of donning life vests before boarding the lifeboat, they will be available under the seats in the lifeboat, similar to those on an aircraft. This will make the entire evacuation process much quicker and efficient, the company stressed.

Passengers will board the lifeboats from both sides of the room through the wide falcon-wing doors, which are fitted along the side of the lifeboat and then will be securely seated.

As soon as the first lifeboat is full, and if the Master decides that the ship needs to be abandoned, he or she will order the lifeboat to be launched, either from the starboard or port side doors, depending on the prevailing conditions.

Once in the water, the pilot will navigate the lifeboat away from the ship and any danger.



There are three distinct lifeboat types being marketed at present.

To launch the lifeboats, an electromagnetic propulsion system will be used, similar to those used on roller coasters and high-speed trains.

Three types

Thus far, there are three types of lifeboats are on the drawing board:-

- One-deck lifeboat, designed for smaller cruise and expedition ships. The lifeboat is installed athwartships and can be launched either on the port and starboard side.
- One-deck lifeboats similar to the model above, but with the steering function placed aft. This lifeboat, which will be fitted at the stern of the ship, is optimal when sailing in ice covered (Polar) waters.
- Two-deck lifeboat, designed for large cruise ships and passenger ferries. The lifeboat is installed athwartships and can be launched either on the port or starboard side.

The lifeboats that are stowed and launched from the aft doors can be fitted with KRS' liferafts. These are used to pick up persons from the water, as needed.

The liferafts are designed to allow helicopter rescues, as persons needing evacuation can easily be airlifted from the raft.

Passengers with special needs, such as children, the elderly, people with reduced mobility, and those on stretchers can also easily be evacuated, thus setting a completely new standard for full-spectrum marine evacuation, KRS claimed.

The lifeboats are designed to accommodate persons for a minimum of five days, in accordance with the IMO Polar Code regulations.

For the beam fitted lifeboats, two propulsion units will be fitted, one at each end, powered by 250 hp engines, thus the lifeboats are designed to be able to manoeuvre against the wind in any type of weather conditions. The largest lifeboats will also be fitted with side thrusters to ensure full manoeuvrability.

Prototype

In conversation with ICSI, KRS said that it was currently raising the investment needed to construct a 3 m long prototype.

In addition, marketing the products is underway, including the designing of a website and the production of promotional videos, outlining the lifeboats' design and discussing the incidents mentioned.

The concept is being marketed to cruise and



A stern launch is possible through two hatches

ferry owners and operators, as well as passenger vessel designers and shipbuilding yards.

Although the lifeboats have been designed to be primarily installed in the aft end of a ship, on one of the lower decks, the company explained that this will most likely vary depending on the size of the ship.

This will be further researched and KRS is waiting for qualified feedback from ship designers.

As for the lifeboats' manufacturing and mandatory servicing, this is still under discussion but KRS said that the need for servicing will be significantly reduced, compared with traditional lifeboats since KRS' lifeboats are housed inside the ship in dry, warm conditions and not exposed to weather wear.

Thus, the servicing will be much easier to undertake since it will be carried out inside the lifeboat room and can be accomplished even while the ship is at sea.

KRS explained that this could be an area where shipowners can save a lot of money.

As for lifeboat capacities, if the aim is to have 100% passenger and crew capacity, which KRS advocates, for a 5,000 pax ship, 10-11 x 600 passenger and crew capacity lifeboats would be needed. All of the stern lifeboats can carry liferafts but this will be up to the shipowner to decide.

For a vessel similar to the 'Viking Sky', KRS recommended three stern fitted 600 pax lifeboats but for a large ropax, such as the 'Estonia' where the lane meters on board for wheeled cargo are almost sacrosanct, there may be a possibility to store the lifeboats near the forward end of the ship.

Again, KRS is planning to ask ship designers to look into this lifeboat positioning and give their thoughts.

Crew training for lifeboat operations has been a problem for many years.

However, the Kloster Lifeboats will be launched by just clicking a button on a remote controlled device, either by the Master or an authorised crew member. Sensors will be installed to monitor all aspects related to the launch.

As a result, much less training will be needed on the launching process, compared to traditional lifeboats.

During training, the KRS lifeboats can even be launched without the need for any of the crew to be on board.

Although accepting that not much could have been done to save lives on board the 'Herald of Free Enterprise', due to the speed of the water ingress along the car deck, in the case of the 'Estonia', the crew had around 30-40 minutes to get people off the ship.

The company acknowledged that there were a lot of human error and construction faults that led to this particular disaster and it most likely would not happen on a ship today. However, had KRS lifeboats been fitted on board at the time, a good percentage, if not the majority of passengers and crew on board who lost their lives could have been saved.

For example, instead of fighting their way up the staircase towards the outer decks, where the lifeboats were located, the passengers would have been moving downwards, towards the lifeboat rooms, KRS claimed.