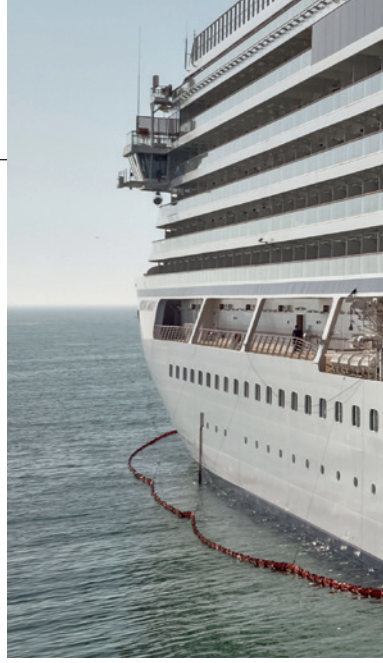


Passenger ship evacuation: digitalisation, automation and electrification

Trends including greater automation, sustainability and artificial intelligence are driving developments within the lifeboat and davits sector

The passenger ship industry is on the cusp of change, with increased automation, artificial intelligence, virtual reality, and greater connectivity driving new developments for the safe evacuation of passengers and crews.

Survitec technical sales director Richard McCormick says starting in the cruise and passenger sectors, ship safety systems are set to become digitally managed and highly automated. Change will take time, he predicts, as safety regulations will require updating. But he points to the widescale adoption of digital technologies in other fields of ship operation and that the overall digitalisation process is accelerating fast.

"Taking the human element out of passenger ship safety systems inevitably means safety improves. We already have the first ships capable of operation without seagoing personnel, and we will soon have vessels on ocean routes capable of being operated remotely," he says.

Consider Survitec's advanced evacuation system Seahaven, which received Lloyd's Register certification in September. "This is a major first step on the journey, says Mr McCormick. "It will transform passenger ship evacuation and is already being adopted by cruise lines."

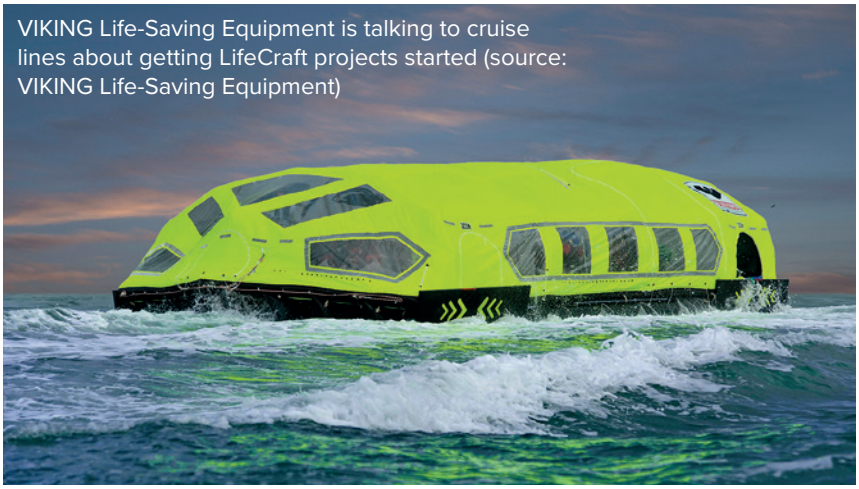
Survitec vice president innovation and product development Stewart Gregory says, "We may move away from evacuation craft altogether and have passenger ships that are designed and built never to be evacuated. They will have more digitally controlled watertight doors and whole sections that can be detached and are 'survivable' in their own right.

"Some cruise lines are already using facial recognition to speed the arrival process so passengers can transfer from car to cabin in under 10 minutes. Many now use digital bracelets to notch up location on the ship, onboard expenses, and so on.

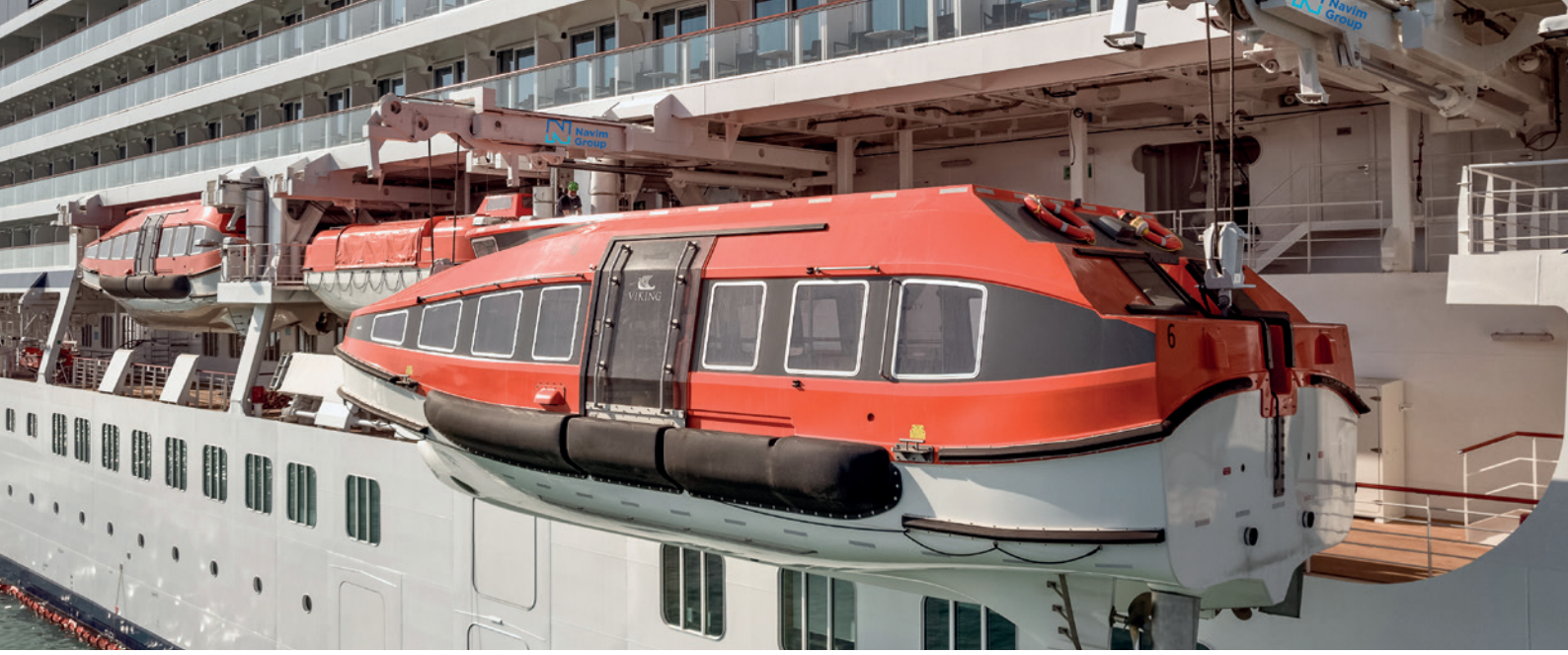
"I expect the next stage to be new apps on smart watches, phones or bracelets linked into a shipboard system to provide guidance on emergency procedures to view in advance. And, in the event of an emergency, these apps will ensure passengers proceed to the safe ship space as quickly as possible.

"We will be able to monitor the impact of different environmental conditions, why certain routes or regions are more challenging than others, for example, and systems will provide a valuable addition to through-life risk management. The days of immersion suits, life-rafts and lifeboats could be over.

"To succeed, we will need to blend technologies that are being developed in other sectors including automotive, aviation, defence and medical. And we will need forums to exchange ideas. In the future, I see this blend of new safety technology built initially into



VIKING Life-Saving Equipment is talking to cruise lines about getting LifeCraft projects started (source: VIKING Life-Saving Equipment)



Navim davits systems are being deployed in a wide range of upcoming new cruise ships (source: Navim)

Seahaven, and later into the sections of passenger vessels used to house people in an emergency," Mr Gregory says.

LifeCraft and electrification

Elsewhere, speaking about the 'game-changer' LifeCraft's imminent move into the market, VIKING Life-Saving Equipment vice president cruise sales Niels Fraende says, "A first order will be pivotal to pave the way and we are talking to cruise lines about getting projects started. The only issue is none of the cruise lines have new series of vessels on the way – those that are currently being built are those started before Covid-19. We need to see the start a new generation of ships which include the new return to port rules and other elements from 2020."

Looking forward, Mr Fraende singles out electrification as a main trend for lifeboats and other life-saving equipment. And he comments that while fuel cells are currently at a very early stage, lifeboats could be powered by them, once ships start to use that type of power source.

There are challenges when it comes to powering lifeboats with electricity. Mr Fraende explains, "There are some rules and regulation challenges. For example, there are still SOLAS requirements demanding lifeboats are capable of doing 6 knots for 24 hours. To do this on batteries would require a lot of power, so that is one of the challenges."

Nevertheless, VIKING is ahead of the game here, as it has its first battery-powered lifeboats approved for offshore vessels and has also launched an electric-powered rescue boat. Also, its LifeCraft runs entirely on electric power.

He adds, "We are also looking at battery-powered tenders and lifeboats for cruise ships. A lot of manufacturers are looking into this, and we are aware this is the way the market is moving. That said, there are learning curves to be addressed in this area."

Upcoming davit orders

Major trends for the cruise industry include luxury, small ship cruises and sustainability – and Navim explains how it will meet these.

As well as "creating sustainable ecologically sensitive green solutions", Navim chief executive Giuseppe Cracolici says, "Our production is very customised. Our products are made of specific technical and technological details, resulting in unique pieces of sartorial engineering, despite their size and weight. It is the ability to provide tailor-made solutions that makes us authoritative and a leader in the market."

Navim systems being deployed for upcoming new cruise ships include *Seabourn Pursuit*, being built at Mariotti in Genova. Navim says the ship combines the "luxury of a Seabourn ocean cruise ship with the adventurous spirit of an expedition ship. How does Navim Group cope with this luxury trend? By designing elegant, conceptual, easy-to-operate davits systems at the cutting edge."

Oceania's *Vista*, currently under construction at Fincantieri, is expected in April 2023. *Vista's* lifesaving system supply from Navim consists of six sets of semi-gravity davits for life boats, four sets of semi-gravity davits for combined life/tender boats, two sets of semi-gravity davits for combined life/rescue boats and two slewing davits for Suez service. "This davits type is designed in such a way that the overhanging, of all types of lifeboats, remains inside the ship's side. The arms can be extended outboard as necessary to launch the boat at sea in all trim and list conditions stated by rules," comments Navim.

Viking Saturn is the 10th in this operator's line that Navim Group has designed, built and delivered the complete side door systems and telescopic davits systems for tender/lifeboats, lifeboats, rescue boats and liferafts.

And for Explora Journey's *Explora I*, Navim Group has supplied two telescopic davits with electric winches for lifeboats, each of at least 150-person capacity, six telescopic davits with electric winches for tender/lifeboats, each of at least 150-person capacity in lifeboat mode and 85-person as tender, two telescopic davits with electric winches and hydraulic brake control for combined tender/life/rescue boats, each of at least 38-person capacity in lifeboat mode and two slewing davits with an electric winch for Suez service.

Other upcoming cruise ships where Navim has supplied its davits systems include: *Norwegian Viva*, *MSC Euribia*, *Seven Seas Grandeur*, *Brilliant Lady*, the fourth of Virgin Voyages' ships, and Cunard's *Queen Anne*. PST