

The future of the bridge: how far are we from autonomous yachts?

From Alexa to Siri, Artificial Intelligence (AI) is already infiltrating our everyday lives without us noticing. Every day there is an ever-increasing innovation in new technologies trying to improve and make our lives easier. We are seeing the rise in popularity of autonomous cars, from driver assist and lane drift warnings, to near-to self-driving – in the latest Tesla models. So, what about the future of the bridge? Will we switch out our human Captains to robotics and AI? Will owners want their expensive pride and joy to pick them up without human intervention?



Image by Riva Yacht

Taking over the helm

There are a few recent examples of autonomy in the Marine sector. This June, the *Mayflower Autonomous Ship (MAS)*, a 50ft solar-powered trimaran, completed a 3,500 miles unmanned trip from Plymouth, UK to Halifax, Nova Scotia. The project is led by ProMare, a US non-profit, and IBM; they have already carried out various autonomy-based scientific experiments. However, this vessel's other mission is long-term sea exploration, gathering ocean data as a more cost-effective alternative to crewed vessels.

On a larger scale, the Hyundai subsidiary, Avikus has also recently conducted a successful transatlantic voyage in collaboration with SK shipping. The large merchant vessel called *Prism Courage* used level 2 autonomous navigation technology to cross from the Gulf of Mexico to South Korea in 33 days. As agreed by the IMO, level 2 autonomous technology means crew members are still onboard in case of emergency, up to level 4, which is movement without any human interaction.

Whilst this level of autonomy hasn't yet reached the superyacht industry, these examples and successful voyages are catalysts for the future of the bridge and further advancement in developing maritime autonomy. Various Superyacht players are showing a keen interest in pioneering autonomous yachts, including shipyard [Mengi-Yay](#).

READ MORE: [Yacht Crew Rotational jobs: Good or Bad?](#)

The autonomous concepts

The role of AI has been quietly gaining pace in the industry for the last few years, reflected in various design concepts. The yacht design studio of [Max Zhivov](#) has created the 26m *Drakkar S*, a smart yacht concept controlled by AI without a Captain, able to identify surface and underwater obstacles. The idea is a solution for yacht charters with short journeys of 1-4 days, with guests controlling all aspects of the yacht via a smartphone app.

[DLBA naval architects](#) have created a 58m autonomous concept, *Tempo*. Jefferey Bowles, the Director at DLBA, explains, “we are currently working on autonomy in two domains directly applicable to yachts, maneuver autonomy and self-adaptive health monitoring (SAHM).” The team at DLBA “recently concluded our effort with DARPA on the No Manning Required Ship (NOMARS) program to maximise vessel reliability through SAHM. The program concluded with the preliminary design of a Hull, Mechanical, and Electrical systems (HM&E) autonomous system to provide fault detection, fault prognosis, and plant reconfiguration. We are currently conducting laboratory testing to validate our solution.”

At Feadship, the [Pure concept](#) is the best example of the potential benefits of autonomous developments. Technology such as their polestar system, as described by the head of R&D at Feadship, Giedo Loeff, will “enable (in part) further automation of engineering tasks and remote engineering.” The Pure concept is based on how a yacht can be rearranged by implementing more autonomous features. Loeff discusses that “technology-wise, a lot is already possible. We have tested automated navigation systems and situation awareness systems using augmented reality. These systems will become part of bridge systems in the near future.”



Image by Fraser Yachts

Why autonomous?

But why the need to design autonomous yachts? What are the benefits? The drive to move the industry towards a sustainable future is vast. Research has shown that autonomous vessels tend to have a smaller carbon footprint than crewed vessels, optimising fuel and the health and automatic maintenance and tracking of the onboard systems.

Other potential benefits surround the economics of running the vessels; this can especially be seen within shipping. Making the vessel autonomous has been shown to reduce crewing costs. This is also reflected in the navigational aspect; AI can enable the vessel to take the most economically best route, reducing fuel and equipment usage.

As well as the environmental considerations, there are also safety considerations. Through autonomy, the human error resulting in accidents can be eliminated with more efficient navigation and reduced risks of collision and grounding. However, on the flip side to the increase in safety, there is the increased issue of cybersecurity flaws whereby communication channels need to be 100% protected with tight

cybersecurity plans to remove the risk of potential intrusions to the vessel. The IMO states that all vessels over 500GT need a workable cybersecurity plan.

There are also beneficial design aspects when it comes to autonomy. Loeff explains that the benefits of an autonomous superyacht are very “personal” and “all owners would benefit from more space and flexibility in design.” However, he further explains that a fully autonomous superyacht “would require a new sort of client, but the next generation will have very different expectations and acceptations.”

Who is in charge?

However suitable the benefits may sound, autonomy in the oceans has various obstacles to overcome, such as legal and regulatory hurdles.

The legal practicalities are hazy; maritime law is not yet prepared for the arrival of full autonomy, with issues such as unpredictable outcomes and liability concerns. Any autonomous vessel accident will bring a huge wave of legal, liability and insurance complexities. Losing an unmanned vessel to an autonomous accident or mistake is one thing but losing an unmanned vessel carrying humans is another. Insuring these vessels is complex; a new level of thinking and mindset shift would need to come.

Currently, the IMO has constructed a spectrum of autonomy. Level 1 is operated by humans, allowing AI to make unsupervised decisions. Level 2 is a remotely controlled vessel with humans onboard. To level 3, the remotely controlled vessel doesn't need humans onboard; onto the final level, full autonomy at level 4 with no human involvement.

An evolving crew

Whilst examples of autonomous vessels are already in play, particularly within shipping, is the superyacht industry ready in the same way? The human element in the superyacht industry is crucial; it is an industry reliant on unparalleled service by humans. Owners and guests trust the Captain and crew to make their time onboard safe and enjoyable. Will this relate to robotics and technology in the same way? Possibly not.

The future may see a Captain's role change onboard. Instead of physically driving and parking the yacht, a Captain may be trained to oversee and override the AI tech. Bowles at DLBA believes that "we need chefs, stews, and deckhands to provide attention and enjoyment to passengers. The captain and engineering team, on the other hand, I think could be eliminated one day." He explains that "the deckhand could be crossed-trained in the deck and engine department and would be able to sort details the AI could not." Whichever new crewing situation unfolds in the future, it will likely require re-training and qualifications.



Full Service Superyacht Agency



A new frontier?

Whilst there has been a lot of research, investment, and trialing within maritime autonomy, the field is still new. There is still some scepticism and lack of confidence surrounding the technology. Not only this but the issue of cost, implementing autonomous technology is expensive, and shipyards and owners need to have complete confidence before investing. Bowles states, "going autonomous is like going green at this stage in its maturity; it requires a commitment and a healthy chequebook and doesn't always result in a return

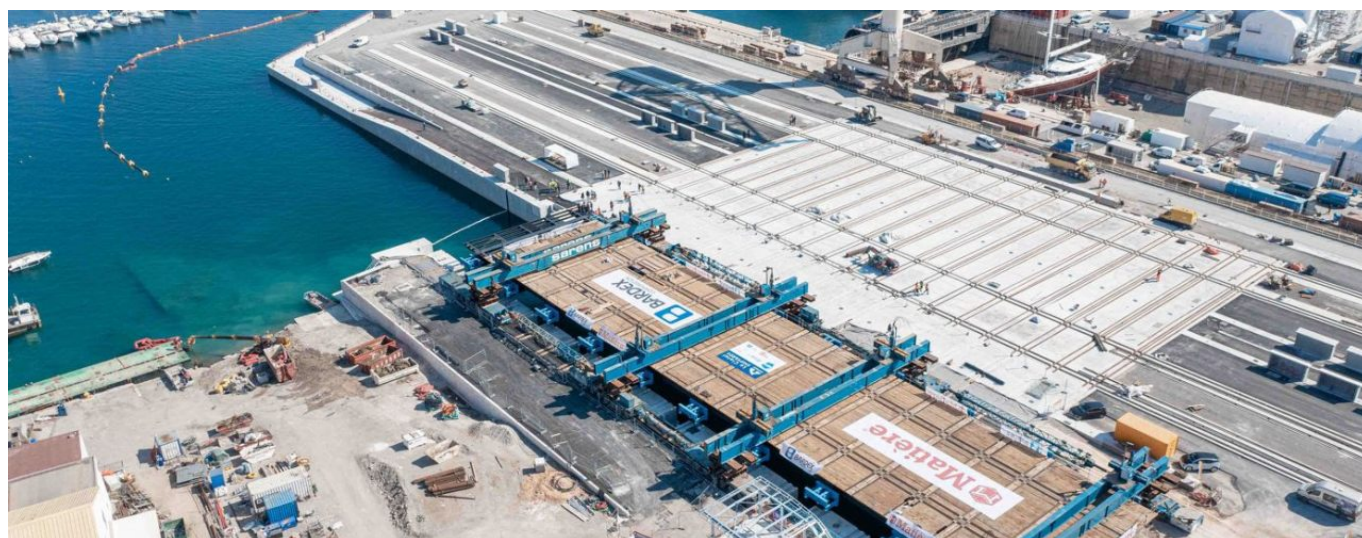
of investment. That will eliminate 95% of the potential embracers of the technology.”

Benefits can be seen in shipping, but there is still a sizeable gap regarding Superyachts. A human is still very much a valuable element of a Superyacht. Similar to the IMO autonomy levels, we may see versions and levels of varying autonomy gain pace in the future.

For the latest Superyacht Content crew mess news, [click here.](#)

MB92 La Ciotat Superyacht Shipyard Closer To Completion

[MB92](#) La Ciotat, France’s leading superyacht refit shipyard, announced that a major milestone has been reached in the construction of the platform, maintaining the shipyard’s schedule for the opening of the facility as planned this autumn for yachts up to 115-metres in length.



What's new?

Following the delivery last summer of the main elements of the structure and 9 months of engineering work on-site, the Matière-Bardex team has now completed the complex task of assembling and moving the lifting platform to its final position. At 100 metres in length, equivalent to a football pitch, and 20 metres wide, the platform weighs 1,100 tonnes and required a team of 20 people and 3 hours to carry out the exceptional manoeuvre of moving the shiplift structure and 2 days for the final installation in the concrete recess.

The innovative Bardex lifting system which includes 20 chain jacks is now being installed and features a hydraulic ram and chain system expressly designed to increase safety and reduce maintenance.



The Installation of the world's largest artificial harbour-based fish nursery:

The platform's docks have been equipped with a biomimetic solution supplied by the company Seaboost. Based on the complex structure of Posidonia seagrass, this solution creates an effective, integrated, and safe environment that will encourage the reproduction of local marine species.

In addition to the nursery, La Ciotat Shipyards, the local port authority, have administered an exemplary project, implementing numerous environmental measures during the construction phase such as soil decontamination, reuse of materials on-site, installation of a double bubble curtain, and anti-sediment curtains to protect cetaceans and water quality.

Mathieu Bauden, MB92 La Ciotat Facilities Director comments:

"This is a key stage in the delivery of the 4300t platform which leaves us well-positioned as we enter the final six months of the project. The next important steps are the delivery of the control building, the installation of all energy networks, reception of the transfer system, the cradles, and final testing followed by certification by Lloyds this summer."

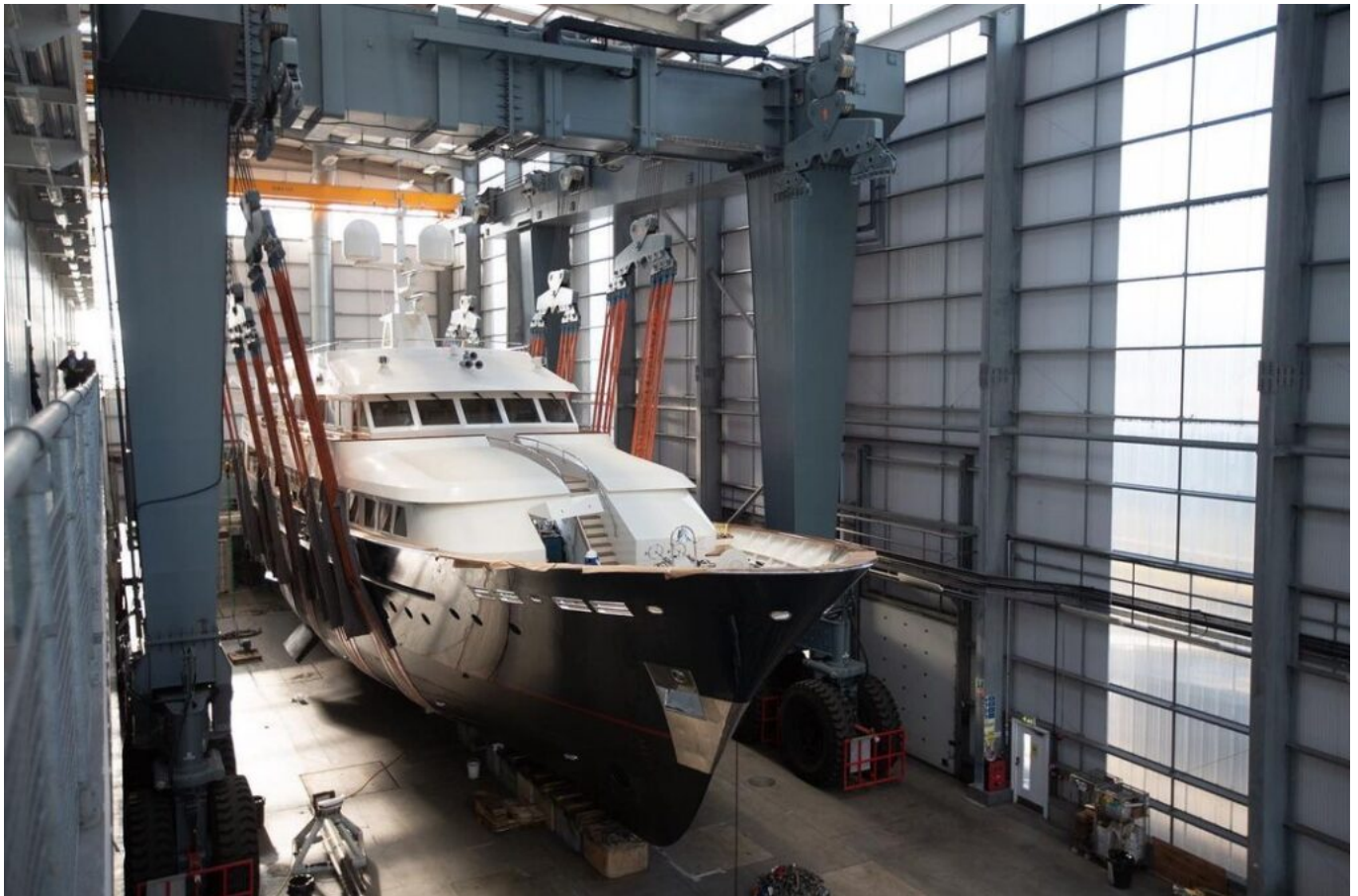
Vincent Escallier, Commercial Director of MB92 La Ciotat added:

"We are all looking forward to the imminent opening of our new facility and this latest accomplishment brings us one step closer. It's an extraordinary piece of infrastructure that complements the wide range of lifting options available to clients of our shipyard."

For a Yacht Crew Guide To La Ciotat, [Click here](#)

M/Y A2 Successfully Relunched Into The Wet Basin At Pendennis Shipyard

The world recognised shipyard reported on their socials earlier this week that [Pendennis](#) successfully relaunched M/Y A2 back into their wet basin.



The 42.35m vessel was originally known as 'Masquerade of Sole', but was renamed M/Y A2 after arriving at Pendennis in 2011 and being rebuilt in 2012. All three decks of the Superyacht were extended to 47m, along with a full-paint job that left the yacht looking modern. In regards to the interior, during the installation, the Pendennis team worked closely with the interior build experts, [Peter Marino Architect \(Remodel\)](#) to help exceed the owners' expectations.

Upon completion of the rebuild, Captain A2 of M/Y A2 praised Pendennis services, saying:

"TO SAY THE LEAST THIS PROJECT WAS ENORMOUS AND OUR TIMESCALE LIMITED. THE WORK WAS CARRIED OUT IN A THOROUGH AND PROFESSIONAL MANNER. THE RESULTS SPEAK FOR THEMSELVES, WE HAVE A BEAUTIFUL YACHT" – CAPTAIN – A2

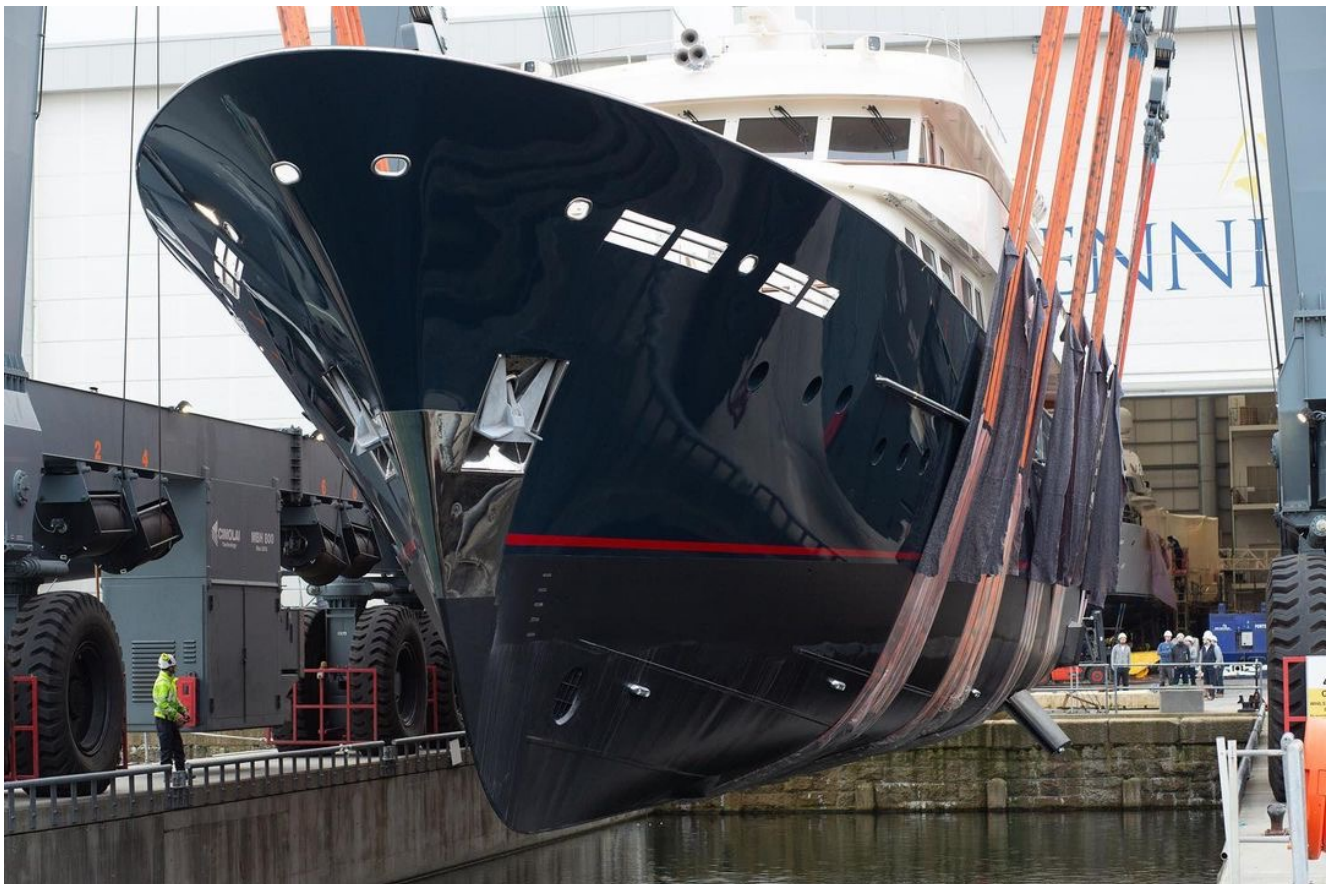


Image by Pendennis

Since then, M/Y A2 has visited the Pendennis Shipyard, in

Falmouth three times. A2 has just undergone a four-month programme of works. This included a **ten-year** class survey, a complete **hull repaint**, and a number of **interior/ engineering upgrades**.

Current Specifications:

Overall length	47.0m (154'2")
Beam	8.08m (26'6")
Draught max.	2.41m (7'11")
Gross tonnage	458

For more information on Pendennis Re-fit services, [Click here.](#)

For the latest Superyacht news, [Click here.](#)

Feadship Project 823 Announced

Feadship recently announced a new 67.40-meter project 823 over Instagram.

Few details about the Feadship project 823 project are known. However, the Netherlands-based yacht builders reported that it left their Papendrecht facility early this morning to be transported to [Kaag](#), where she will be outfitted.

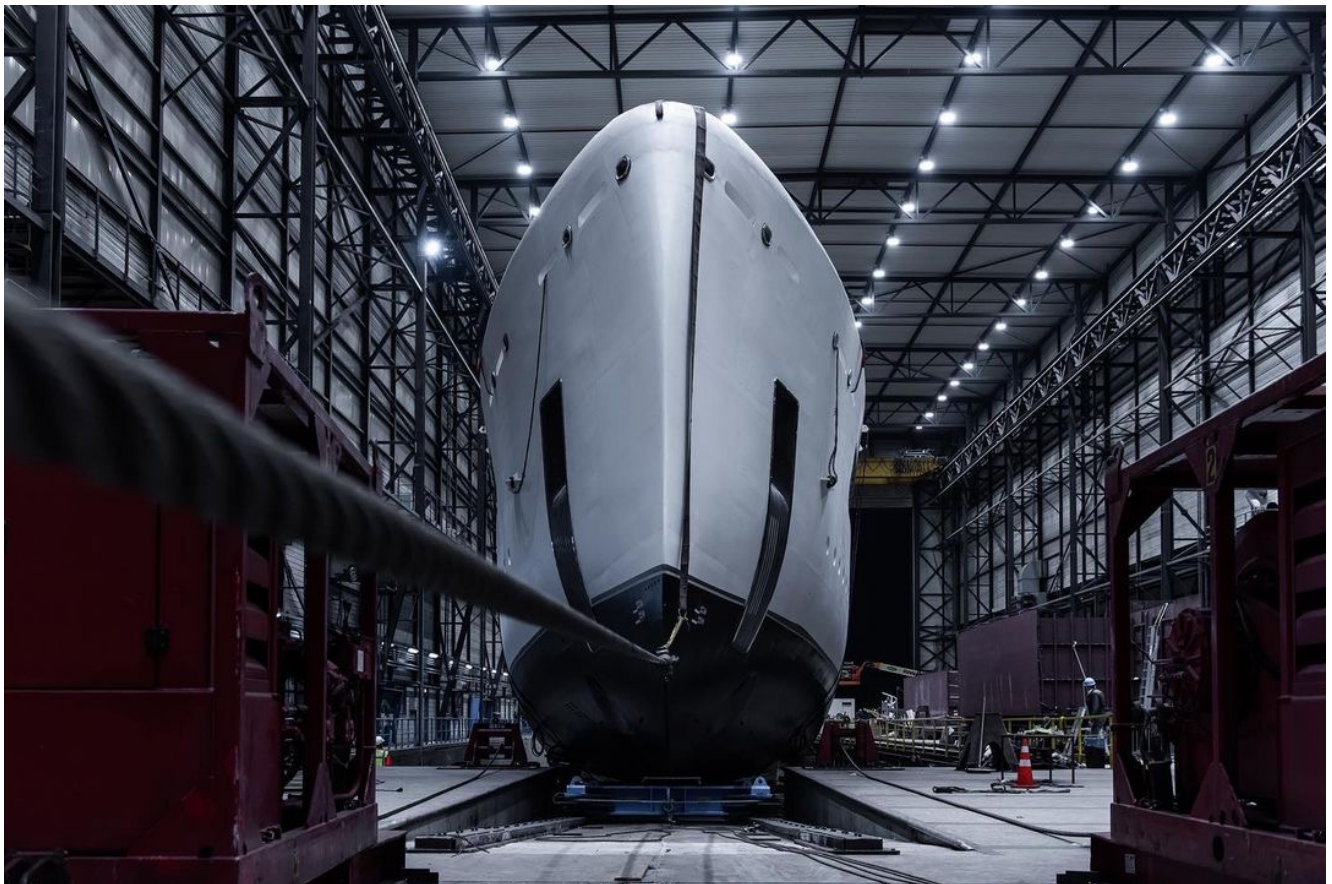
The Shipyard new 67.4m Superyacht spotted

on the move:

<http://www.instagram.com/p/CY7DM4ooc09/>



One of the little details we know is that Feadships Project 823 is set to be delivered in 2023.





All Images by Feadship

Having launched the 71m Juice earlier this month, project 823 is Feadship's second yacht this year. It's safe to say that Feadship are on fire this year and it's only just begun!

More details will be published when they become available.

For the latest industry news, [Click here](#)