



JAN DE NUL CREW INVENTS  
**INNOVATIVE  
BOLLARD STEP**

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During marine transfers, it is essential to achieve a maximum level of control. With the bollard step, Jan De Nul has designed a simple solution to enhance safety during transfers of crew and visitors.

This innovative idea came from the crew of the multicat DN46 and was picked up during an Operational Control meeting, where an advisory board discusses suggestions that improve the safety and efficiency of the company's operations. 'We stimulate all possible innovative ideas within our company', says Quinten Schaumont, Area QHSSE advisor. 'At all levels, at all times.'

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Jan De Nul's bollard step has created a solution that is both easy and quick to use, as well as being low on maintenance. Designed by crew members, the bollard step transforms mooring equipment into a safe and secure step on which to make marine transfers. The main materials used are steel and anti-skid grating. The latter creates a safe surface from which one can make a safe transfer either between two vessels or from a vessel to the shore. The fact that the bollard step is quick and easy to use is reflected in the way it is mounted: two persons can effortlessly carry the two parts of the step and put it in place without the need for extra securing measures.

#### **Operational advantage**

A major plus of the bollard step not being a fixed structure is the operational advantage it provides. When in use, the deck space is not restricted as the step can be dismantled at any time (e.g. when cargo needs to be lifted on deck), nor does it interfere with mooring operations. If mooring operations would be hindered, the bollard step can simply be removed or placed on an alternative bollard.

The design is adjustable to different sizes of bollards and could be extended with a longer surface to step on or made adjustable in length, in the case the width between two vessels is larger than usual. A simple and clever solution, the bollard step creates a safe and steady platform where there could never be a safe step-over zone. Thanks to a straightforward design, local workshops can easily manufacture the bollard step to match the specifications of locally hired vessels. The costs of the prototype were considerably low at around EUR 850 making it a cost effective solution.

There are several step designs that can be used on a variety of vessels. The innovation will also increase safety of crew transfers on small Crew Transfer Vessels (CTVs) where designated means of transfer such as built-in steps are temporarily out of use. Future enhancements of the design could include an adjustable platform at the end to cope with different project locations. One benefit is that CTVs that otherwise might not be suitable during a project could therefore be used thanks to the bollard step.

Depending on the cost of the CTV, this could result in considerable savings.

#### **Design and engineering**

Normally, the Marine Design and Engineering Department of Jan De Nul first designs the equipment, after which it is manufactured. 'For the bollard step it was somewhat different', explains Wouter Tollet, coordinator of the Marine Design and Engineering Department. 'The crew members first created it for the use on their vessel. We then took over that design and improved it for fabrication so it can be used on all workboats and possibly other crafts as well.'

The Marine Design and Engineering department provides engineering assistance resulting in successful, efficient and safe execution of projects. 'Our designers are responsible for the design of equipment and components for vessels and offshore structures in 2D and 3D', says Wouter. 'From the initial concept design to detailed drawings and related part lists, we provide a complete package for logistics, maintenance and production. In a second phase, our

## IADC Safety Awards 2021

The International Association of Dredging Companies' Safety Committee and Board of Directors received 15 submissions for the 2021 Safety Awards. Since this year, two awards have been granted: one to a dredging contractor (also non-IADC members) and one to a supply chain organisation active in the dredging industry.

The committee selected Jan De Nul's innovative bollard step as recipient of the Safety Award for dredging contractors. During IADC's Annual General Meeting held digitally on 16 September 2021, Secretary General Rene Kolman announced the winners and later presented the award to Heleen Schellinck, PR and Communications, who accepted it on behalf of Jan De Nul Group.



structural and marine engineers check the design against their calculations, ensuring safety and efficiency.'

Besides that, the designers and engineers also support the new building department: getting the preliminary design for new build vessels on paper, implementing design modifications and improvements, and keeping the design data up to date. 'We always consult our internal departments to determine the design constraints', Wouter concludes. 'Helping out with the bollard step fitted perfectly within our scope.'

### Operational control meetings

'Operational control and the drive for improvement are embedded at all levels within Jan De Nul', explains Quinten Schaumont, Area QHSSE advisor. 'It is founded on our Imagine, Think, Act (ITA)

philosophy. To achieve maximum operational control, the QHSSE department has defined seven critical risks, one of which is marine transfer. The bollard step is the result of this way of working.'

The ingenious idea of the bollard step is now ready to be rolled out to various departments within Jan De Nul. 'It's the result of years of hard work to implement a platform where such ideas reach us more easily', explains Christophe Leroy, Head of QHSSE Department. 'As such, the bollard step found its way to our Operational Control meeting, an advisory board to discuss suggestions that improve the safety and efficiency our operations. These monthly meetings are set up as a synergy between the technical, operational and QHSSE departments, with the cooperation of other departments if necessary. Together, we discuss inspections,

incidents and propositions of employees and other stakeholders. The goal is to define and identify lessons learned, but also to work out promising initiatives for the benefit of the entire company. Since the start of these meetings in 2015, we have been able to transform a number of ideas of our employees into initiatives that are supported throughout the entire company.'

### Code Zero programme

The Operational Control meetings are firmly anchored within the organisational structure of Jan De Nul Group. More so, they have supported the birth of the company-wide Code Zero programme. 'In 2015, we launched our Imagine, Think, Act (ITA) campaign in which we focus on operational control', says Christophe. 'Now that ITA is well integrated, we have taken the next step with Code Zero. This sustainability programme defines clear ambitions that go way beyond safety: Zero breaches, Zero waste, Zero accidents and Zero emissions.'

The focus of Code Zero is not so much on the individual goal but rather on the common road towards them. An important role is laid out for the employees of Jan De Nul. 'Colleagues who do their jobs well and continuously want to improve themselves, automatically contribute to these ambitions', explains Christophe. 'The bollard step is a beautiful example of this approach. And this is just one of the ideas that came forward. In total, we submitted six initiatives for the IADC Safety Award. We are glad that the bollard step gets the credit it deserves.'



FIGURE 1

The Marine Design and Engineering Department took the crew's initial design of the bollard step and improved it for fabrication.

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KEPPEL OFFSHORE & MARINE'S

# SAFETY PLUS PROGRAMME



IADC's Safety Committee and Board of Directors awarded the very first Safety Award to a supply chain organisation active in the dredging industry to Keppel FELS. The company was praised by the committee for the results of its safety programme and commitment to safety onsite. Anchored in Keppel Offshore & Marine's Safety Plus Programme and Singapore's National WSH Vision 2028, Keppel FELS continues to consistently improve and enhance its existing Health, Safety and Environment (HSE) management systems.

**People are our most important resource, and we invest in their training and empower them to stop any unsafe acts in the workplace.**

Safety, People-Focus, Agility, Accountability and Can-Do are the core values at Keppel FELS. Safety is a condition of work to achieve an incident free work environment and the company is committed to ensuring everyone returns home safe at the end of each workday. With a robust HSE management system in place, the company invests in building HSE competency and capabilities through training, outreach activities and empowering every individual in its workforce to intervene and stop any unsafe acts.

Within the Safety Plus Programme and our National WSH Vision 2028, we put our stakeholders at the centre of all our initiatives. Our customers are invited to participate in our HSE Steering Committees and we continue to share with them the lessons learnt beyond delivery of projects in our shipyards. In embracing agility and accountability, we place emphasis on the quality of our work and production innovation as key success factors to deliver our solutions safely and responsibly. We embrace a strong 'Right mindset, right processes and right tools' approach to complete our work right the first time, therefore reducing rework, reducing risk exposure to our workforce and more importantly, enhancing our product offering to our customers. We believe in investing in our design, engineering, planning and construction processes by adopting

digitalisation and smart asset technology to further value-add to our products and in serving our customers.

#### Continuous improvement

With a robust HSE management system certified to OHSAS 18001:2007 and ISO 14001:2015 certifications, Keppel FELS continue to improve and enhance HSE

excellence consistently. The shipyard adopts a set of 10 lifesaving rules and observes zero tolerance in the violation of these lifesaving rules. In addition, lessons learnt from past projects have also led to a set of high impact risk activities (HIRA) being identified in the shipyard where additional risk assessments are performed prior execution of work.

As part of continuous improvement, regular cold eye reviews by third party stakeholders and workforce pulse surveys are undertaken to ensure that feedback and site conditions are addressed holistically. To achieve a positive safety culture and a 'no blame' culture within a diverse workforce, we invest in building the HSE competency and capabilities through safety training, raising awareness via various outreach activities and empowering every individual in our workforce to intervene and stop any unsafe acts, practices or workplace conditions without hesitation. Feedback is reviewed and followed up by the respective managers responsible and shared with our customers. Our customers are also invited to review our programmes and contribute their experiences to further enhance our implementation.



**FIGURE 1**

Tan Leong Peng, Managing Director, receives the IADC Safety Award 2021 on behalf of Keppel FELS.

#### Stakeholder engagement

At Keppel FELS, we have a collaborative team that fosters strong partnership with internal stakeholders. Frequent engagements are

organised with all parties and safety aspects from the planning stage to the execution process are objectively deliberated to achieve the main objective of an incident-free project.

Various site walkabouts are scheduled throughout the year, involving all levels of the workforce from senior management, management, site-specific lead and subcontractors' representatives. The main objective of the walkabouts is the engagement of the workforce on the ground, understanding their needs and motivating them while ensuring everyone is working safely in a safe working environment. Follow-up actions are planned and reviewed conscientiously in the management committee review meeting.

### HSE observation programme

We strongly encourage and facilitate the workforce on the ground to report any unsafe practices anonymously, thus eliminating the perception of fear of having any repercussion. This augments our belief in empowering everyone to stop work and has provided the workforce on the ground with a sense of security to intervene in any unsafe situation.

To simplify the reporting of HSE observations, we introduced Performance Observation Walkthrough & Engagement Reporting (P.O.W.E.R) that allows anyone to report positive observations and hazards through a mobile device platform. The platform captures the types of observations for analysis and subsequent review of the safe conduct of the specific activities. High-risk observations are prioritised and reviewed closely to ensure follow-up action plans are formulated.

### Technology and digitalisation

Technology and innovation are ingrained in the culture of Keppel FELS. It is essential in building a strong safety culture and enhancing safety standards of work processes. Leveraging modern technology, Keppel FELS' technology and digitalisation arm has driven the transformation of shipyard operations. These new implementations are further reviewed in the management of change of process and evaluated on a periodic basis. Hence, the lesson learnt captured in the change management or evaluation process are incorporated in our operating procedure systematically.



**FIGURE 2**

Our commitment to uphold a strong safety culture extends to our entire workforce, including employees and subcontractors.

For example, while working with Jan De Nul and Van Oord, Keppel FELS' iDiver was deployed to check the underwater conditions of the dredgers following undocking, replacing physical divers for underwater inspection. After undocking, it is imperative that the yard luffing cranes are able to operate to bring construction materials like spools, hull outfitting and equipment on board the dredger for installation. We then engaged Smart Robot to ensure the smooth operation of the cranes by remotely checking the condition of the quayside crane bus bar. This ensures work is carried out in a safe manner without exposing the yard facility personnel to confined space hazards.

Safety is always part of our shipyard culture and daily practice. In receiving this award, we are able to showcase how we strengthen our safety ownership, enhance focus on workplace health, safety and environment while embracing technology into our safety practices. Our continuous improvement and efforts drive a safe work environment for our workforce to deliver quality products.

### Quality in products and processes

We work closely with world-class dredging contractors, such as Jan De Nul and Van Oord, exchanging lesson learnt and implementing safety solutions for our customers. We attained Zero Loss Time Incident man-hours

throughout the Sanderus project delivery with Jan De Nul. Our use of machinery and automation allowed us to reduce our workforce man-hours by up to 30%, reducing our risk exposures and eliminating safety risk hazards.

Our quality records are testament to our emphasis on superior HSE products. Through our weekly safety progress reports, vessel safety plans, drawings to construction, maintenance and material handling, we engage our customers, vendors and contractors regularly to incorporate feedback. This not only ensures quality of the worksite for the benefit of the workforce but also product quality for the end user.

'Safety is a core value at Keppel Offshore & Marine and we have a strong safety culture in place to ensure strict HSE standards are met', explains Tan Leong Peng, Managing Director, Keppel FELS. Over the years, our clients, subcontractors and partners have graciously contributed generously to this programme to innovate and promote this HSE culture. While there is no silver bullet in enhancing HSE culture, neither should we put a value to the returns. Most importantly, our responsibility is to care for our workforce, making safety our core value and condition of work. In turn, we provide our HSE superior products to our customers, ensuring their confidence to use our products safely.