

# SAFETY TALK



## FLOATING LINE CONNECTING SYSTEM WINS 2019 IADC SAFETY AWARD



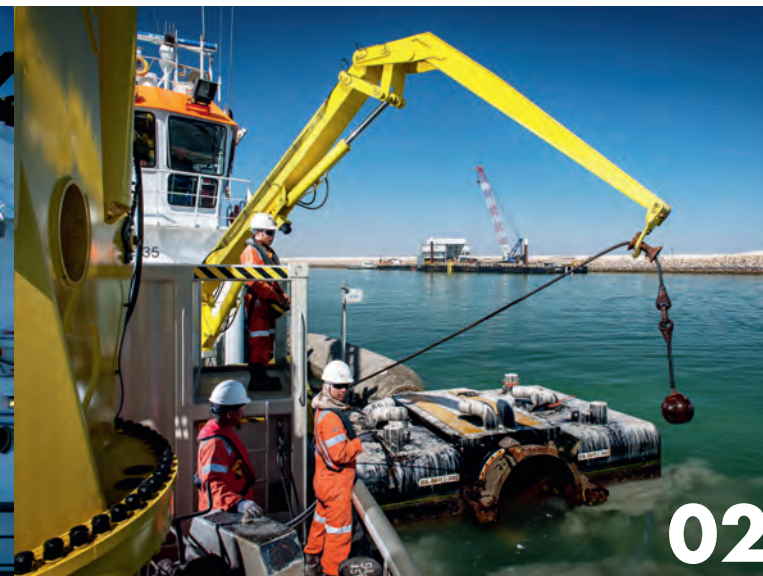
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'The development of the Floating Line Connecting System shows how much we can achieve at Boskalis when an interdisciplinary team of engineers gets together to develop the necessary innovations,' says Daan van de Zande, director of operations for the cutter suction dredgers at the Dredging division's Fleet Management department. 'A safer approach was badly needed to connect floating lines. As part of our No Injuries No Accidents (NINA) philosophy, we are always looking for ways to reduce safety risks. During NINA sessions and through Safety Hazard Observation Cards (SHOCs), colleagues highlighted the risks associated with the manual approach. For example, fingers and hands can get caught between ropes or cables, and colleagues may fall off a pontoon into the water in strong winds or high waves. Another risk that has been

identified was being caught in the snap-back zone when a cable under tension snaps suddenly.'

### REDUCING WEAR AND TEAR

'We got together a large group of enthusiastic colleagues to look for ways of mechanizing this procedure, and we have been working for years on achieving that goal,' says Daan. 'The first step was the transition to longer sets of floating lines. The conventional approach involves the use of short sets. So a lot of connections are needed and connecting the lines always involves risk. We use our cutter suction dredgers mainly on projects involving rocky or sharp material. That posed a challenge in terms of finding flexible floating lines that were sufficiently wear-resistant. In the end, we managed to find



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the lines we needed and so we now use composite lines measuring 100 meters. We've also developed an approach to monitor and reduce wear and tear.'

### INSPIRATION

The next step was to develop a way of mechanizing the connection work. 'The aim was to eliminate safety risks without jeopardizing production rates,' says Daan. 'We were inspired by the Mooring Actuator, a system developed in-house by our colleague Bas Veenstra as a hands-free way of mooring barges to backhoe dredgers. The heart of that system is a manipulator on the backhoe dredger to which a steel ball is attached. The barges are fitted out with steel V-shaped structures: the catchers. The operator on the backhoe dredger steers the ball into the catchers with a remote control in order to establish the connection. Winches then pull the barge alongside the dredger. We built on that idea during brainstorming sessions with colleagues from the fleet and technical and operational departments to develop the FLCS version for connecting floating lines.'

### REMOTE CONTROL

'We developed pontoons that fit together exactly with a male-female construction,' says Daan. 'These pontoons connect the floating line sets. The system has an ingenious structure with three connected winches on a multicat. A system like the Mooring Actuator is used to position the pontoons alongside the multicat. The floating lines are then connected with a remote control. So our colleagues no longer have to step onto the pontoons, they are kept out of the line



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of fire and the risk of injury to hands or fingers has been entirely eliminated.'

### FASTER AND MORE EFFICIENT

The FLCS was successfully deployed on the Duqm project during operations with the cutter suction dredger Helios. 'We installed the system on the multicat BKM 104,' says Pieter Verbiest, fleet manager Auxiliary Equipment. 'The crew members of the BKM 104 learnt how to use it very quickly. All the system components can be disassembled and transported by container, making mobilization very straightforward.' Daan adds: 'The FLCS makes our operations not only safer but also faster and more efficient. The system has now been patented. We have already built a second system and it is now being used by the cutter suction dredger Taurus on the Tharwa project in the Middle East.'

> For more information: send an email to [daan.vd.zande@boskalis.com](mailto:daan.vd.zande@boskalis.com) or to [pieter.verbiest@boskalis.com](mailto:pieter.verbiest@boskalis.com)

01 THE PONTOONS ARE CONNECTED WITH A REMOTE CONTROL

02 THE PONTOONS ARE MANEUVERED ALONGSIDE THE MULTICAT BKM 104

03 THE IADC SAFETY AWARD CEREMONY  
IADC chairman Frank Verhoeven (right) handed over the award to Hans Dieteren, business unit director Dredging & Inland Infra.