



AutoMooring Solutions

Background

- Founded in 2021
- Backed by 120 years of expertise - Mampaey Offshore Industries.
- Transitioning from “start up” - to “scale up”.

Key Domains

- Automated Mooring and Deck Operations Solutions
“Developing intelligent, hands-free mooring and deck automation systems tailored to next-generation unmanned and remote marine operations”
- A.I | Dedicated Artificial Intelligence development team
“Dedicated in-house AI team focused on developing real-time vision, learning, and automation systems tailored to maritime applications.”
- #FutureFuelReady
“Systems Facilitating future alternative fuels and next-gen maritime energy resources.”



Core Activities



Development of Automated Mooring Systems

Engineering hands-free mooring solutions for vessels of all sizes and configurations.

Design & Deployment of Automated Deck Operations

Enabling unmanned handling of mooring lines, charging interfaces, and Deck Operations.

AI & Vision Systems Development and Integration

Building proprietary vision-based platforms for precision maritime operations.

Client Tailored Marine Automation Solutions

Tailoring robotic and software systems to meet unique operational needs across maritime sectors.

R&D for Next-Gen Maritime Robotics

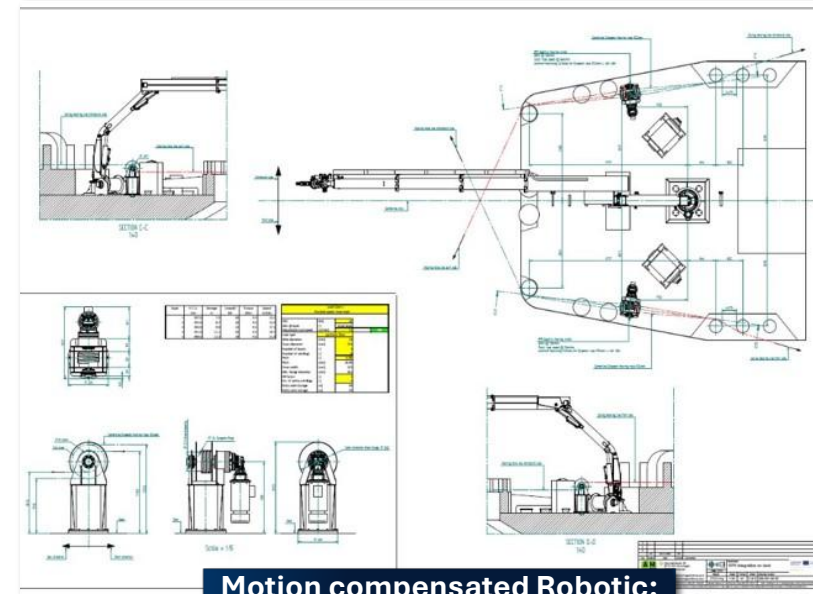
Advancing unmanned systems through continuous research and prototyping with the intended goal of implementation.

Technical Support & Lifecycle Maintenance

Providing installation, training, remote monitoring, and full lifecycle support.



Vision AI:
Target Positioning & Acquisition



Motion compensated Robotic:
Stability, Safety and Precision



Vacuum Mooring:
Eliminates ropes and fenders



Unmanned Mooring and Bunkering:
No Crew Required on Deck

The image shows a large blue and white ferry ship on the left, with two yellow and white lifeboats visible. The ferry is connected to an offshore platform on the right via a ship-to-ship mooring system (STS). The platform has a complex network of white pipes and metal structures. The background shows a body of water and a distant shoreline.

Offshore ship to ship mooring System (STS)

Ship to Ship

AI Vision and target tracking

Kinematic models

Robotics & controls

Marine engineering

Lets keep it simple





AutoMooring
Solutions

What is it?:

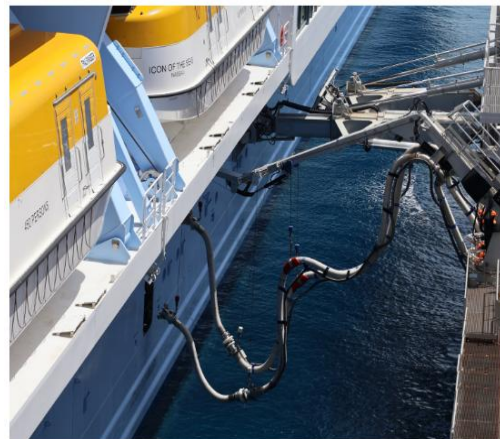
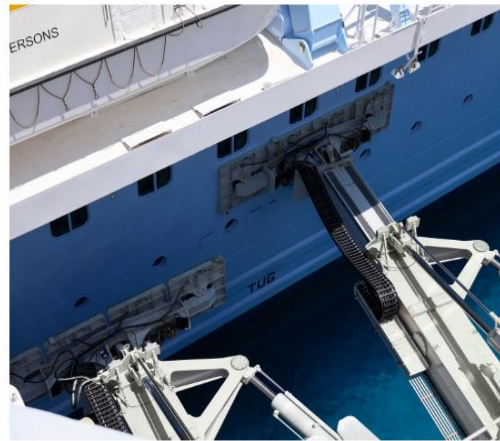
- Automated offshore ship to ship mooring.
- Ropeless and Fenderless.
- $H_s < 3.5$ m / 100.000 ton Dwt
- Mooring force reduced with 70%

Interreg
North Sea

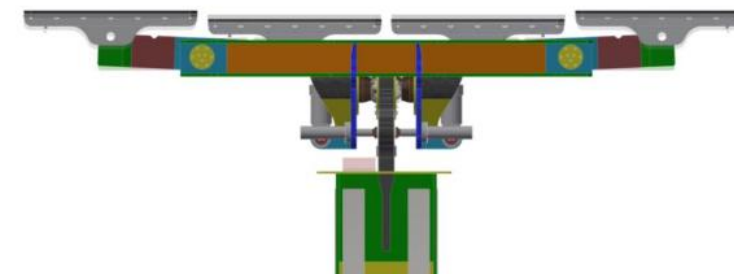
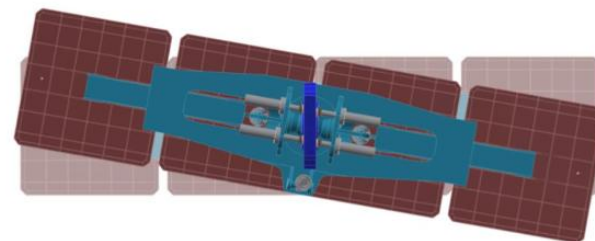
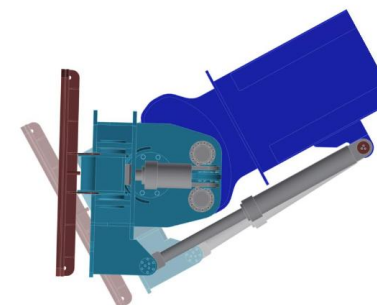
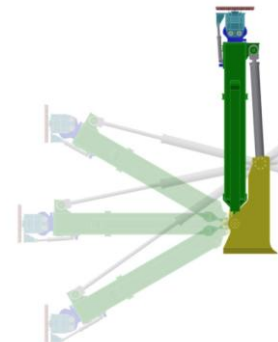
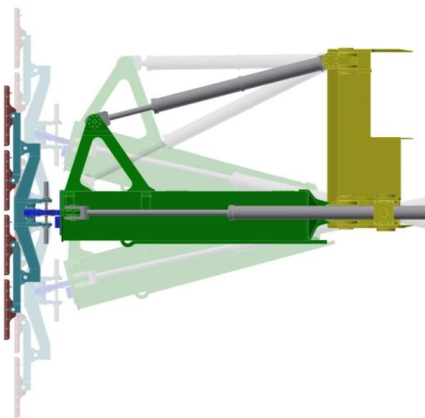
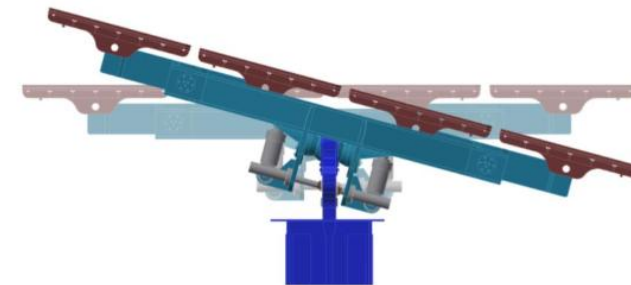
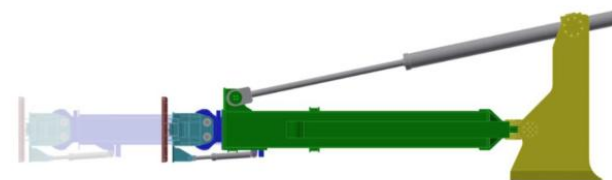
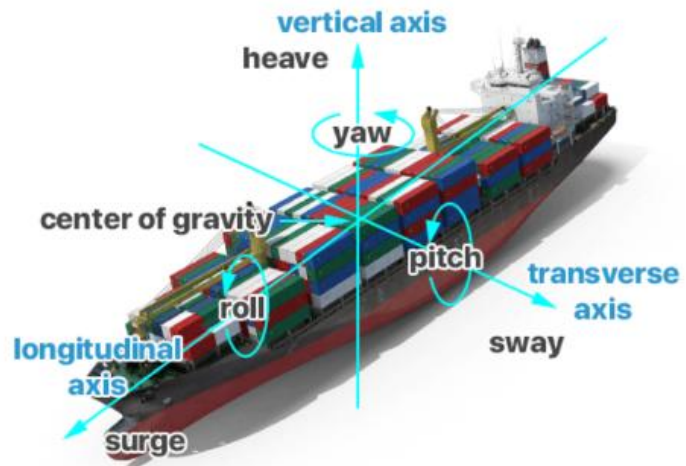


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6-DOF Movements

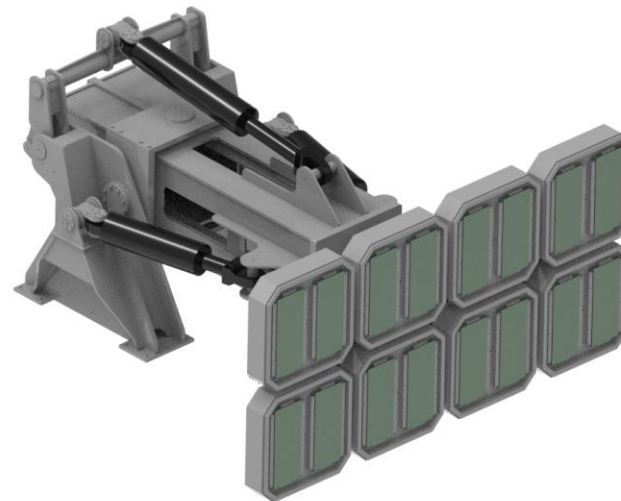
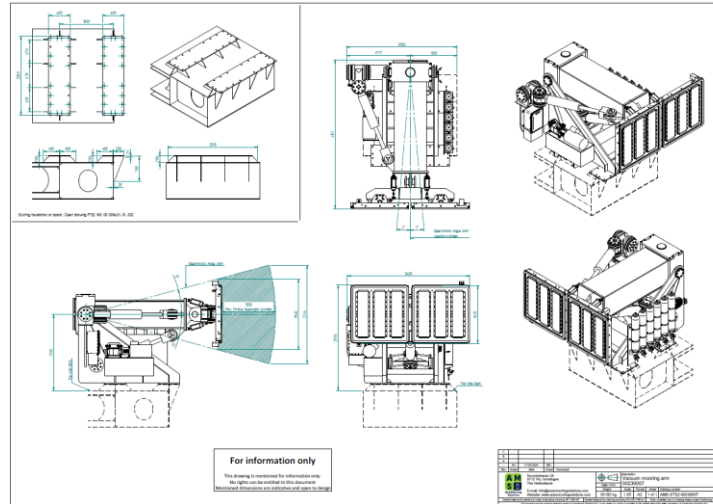




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Jetty Less LNG Transfer Barge

- Sway 48T/arm
- Surge 24T/arm
- Hs 2.5 mtr



AutoMooring Solutions BV – Groningen, The Netherlands

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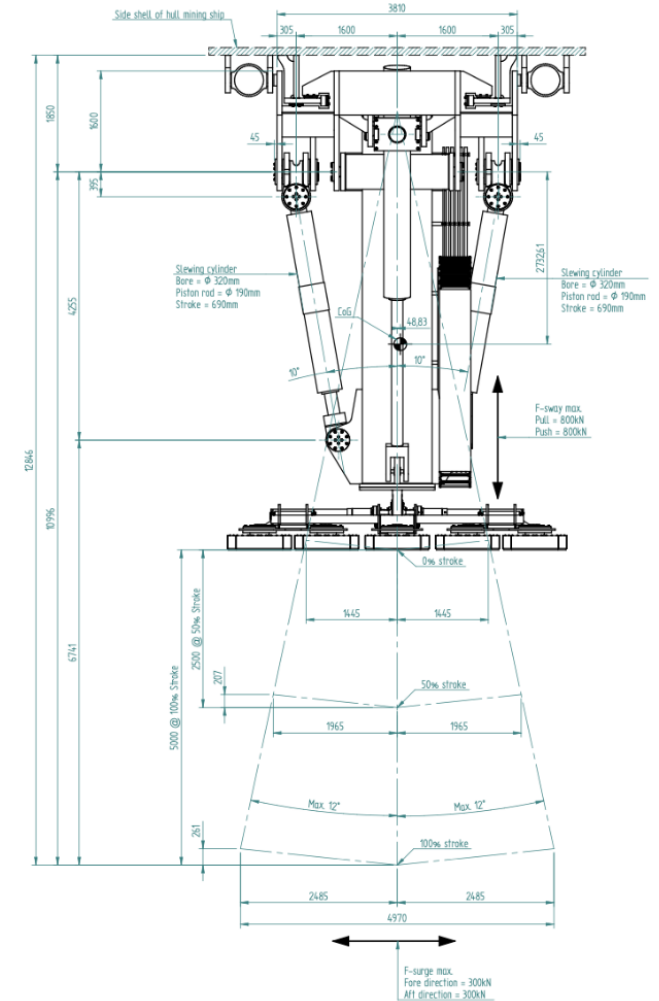
St-8 Ocean

Maximum allowable mooring forces	Value	Unit
Surge force (X direction)	2,400	kN
Sway force (Y direction – pull)	6,400	kN
Sway force (Y direction – Push)	6,400	kN

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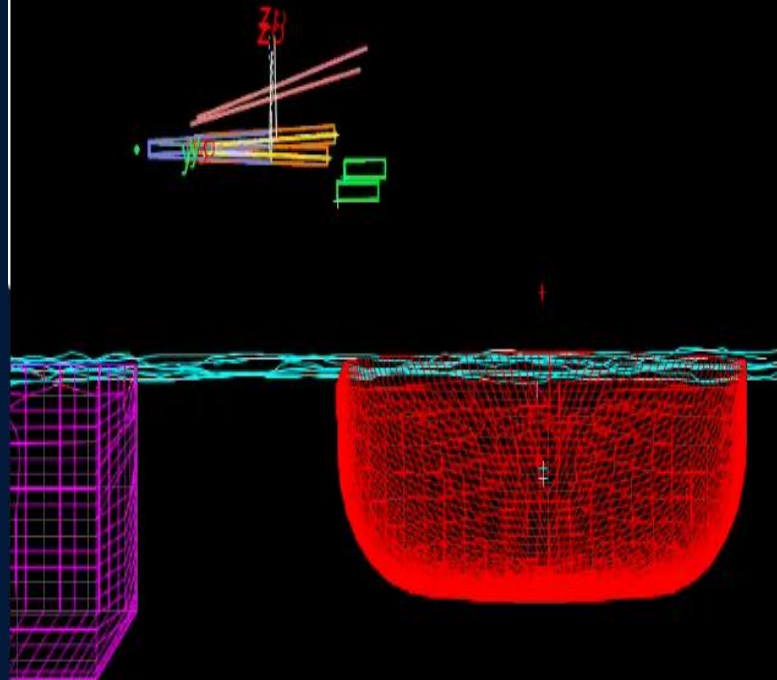
Orcaflex simulation

2 x 100.000 ton dwt

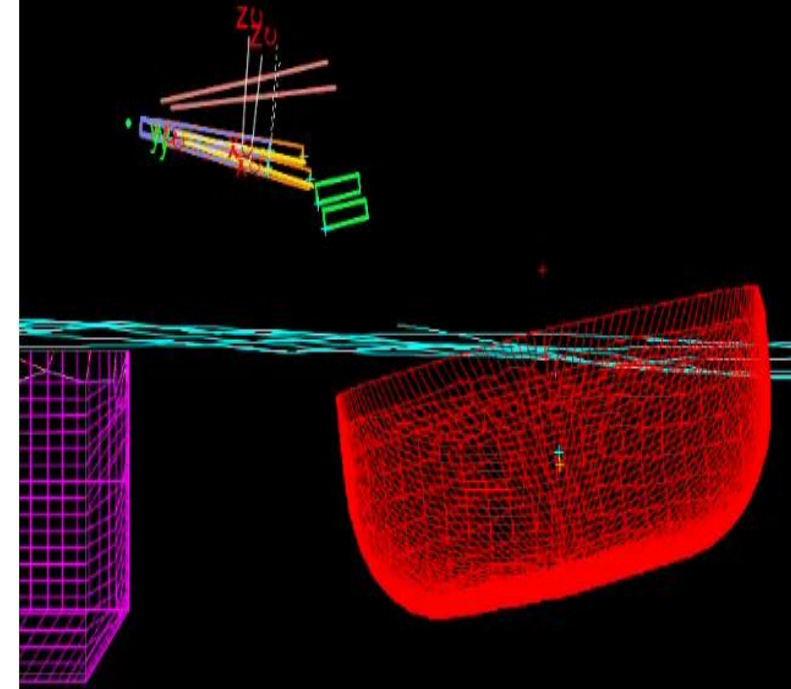
- Sway 80T/arm
- Surge 30T/arm
- Hs 3,5 mtr

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Regular case: $H_s = 1\text{ m}$, $T_p = 6\text{ s}$, $hdg = 150\text{ deg}$

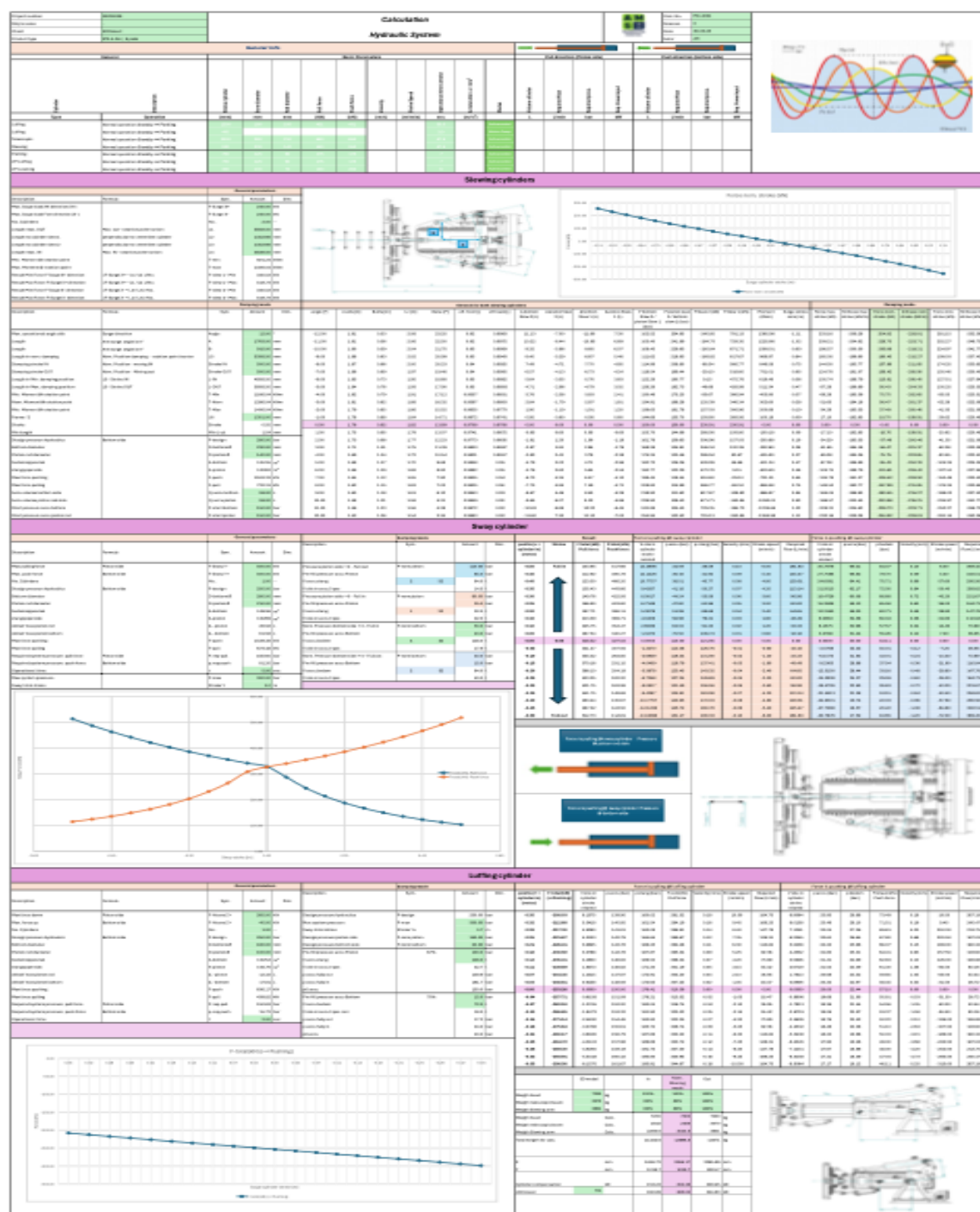


*Extreme case: $H_s = 1\text{ m}$, $T_p = 9\text{ s}$, $hdg = 105\text{ deg}$
Occurrence < 3% per year*



- Reduced Mooring forces
- Optimization of Forces & Motions
- Max 300 kN @ Hs 3,5 mtr

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Benefits of the STS:



Fast (un)Mooring



**Offshore
Bunkering**

Ship-to-Ship



No Deck Personnel Required



Future Fuel Bunkering Ready



Reduction of Mooring Forces



Guaranteed Bunkering



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AVision

Automoooring Solutions



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Our AI System

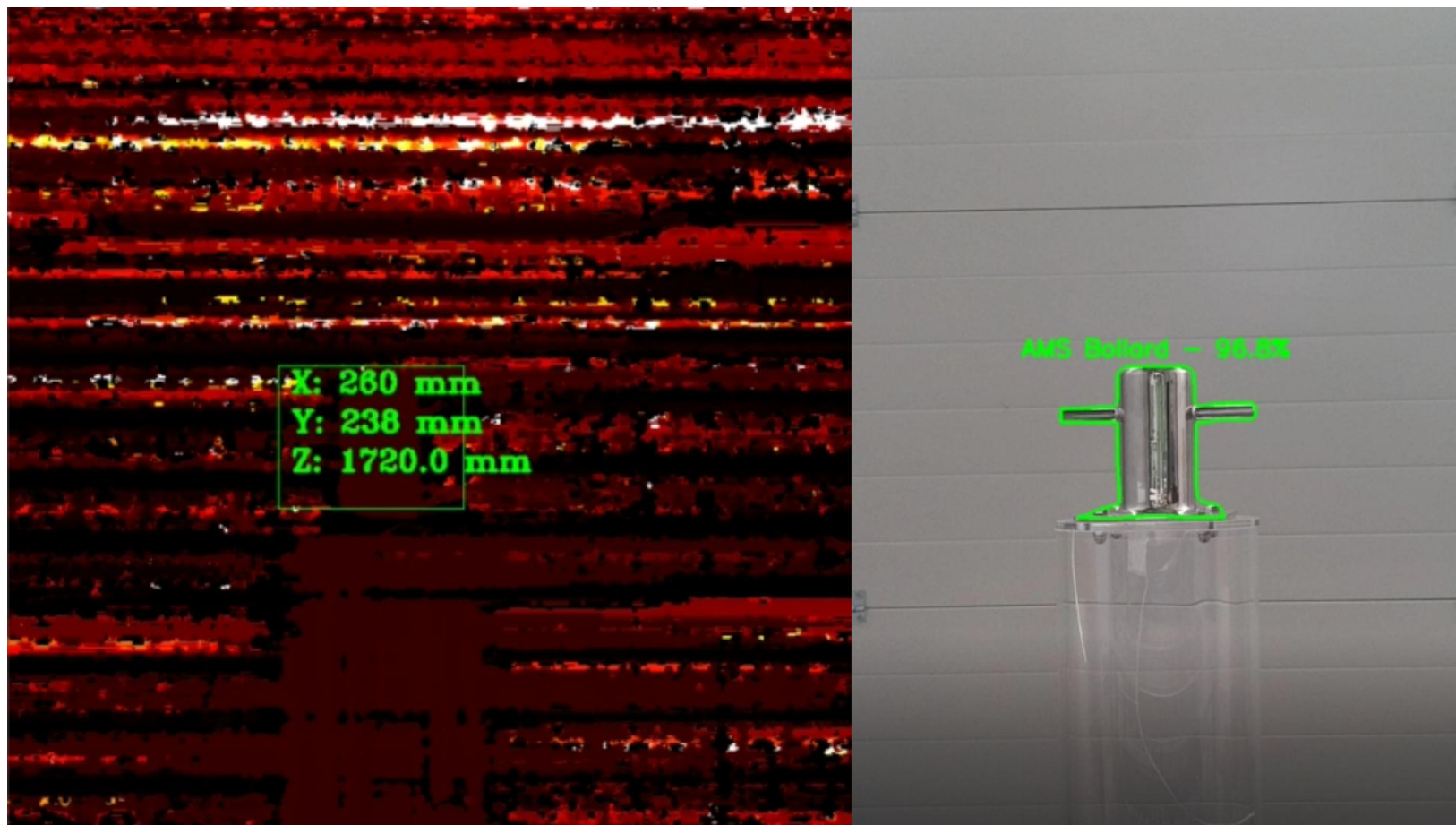
- Recognition of target up to 30 m
- High accuracy
- Suitable for vessel motion compensation

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Detection Capabilities

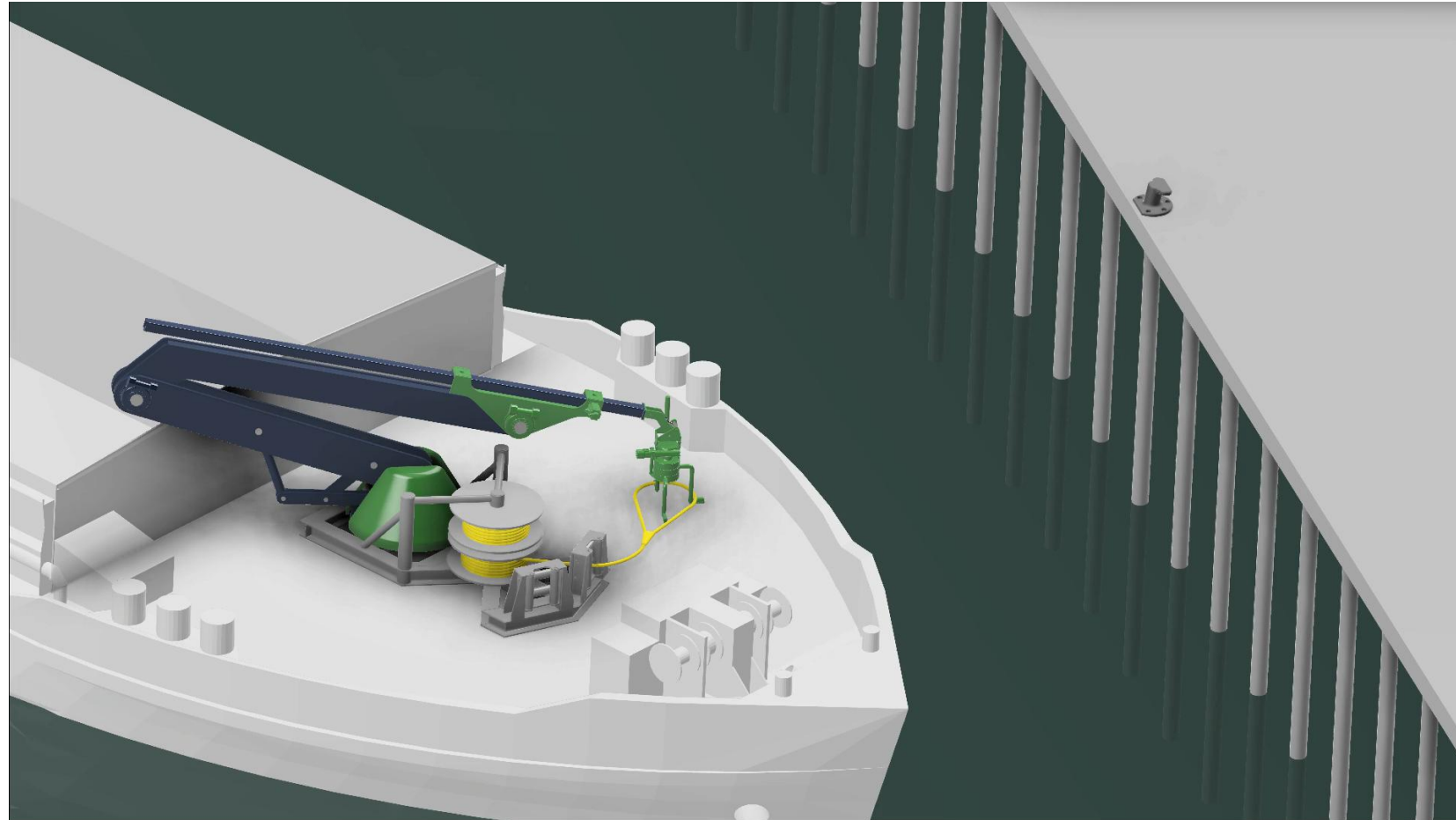


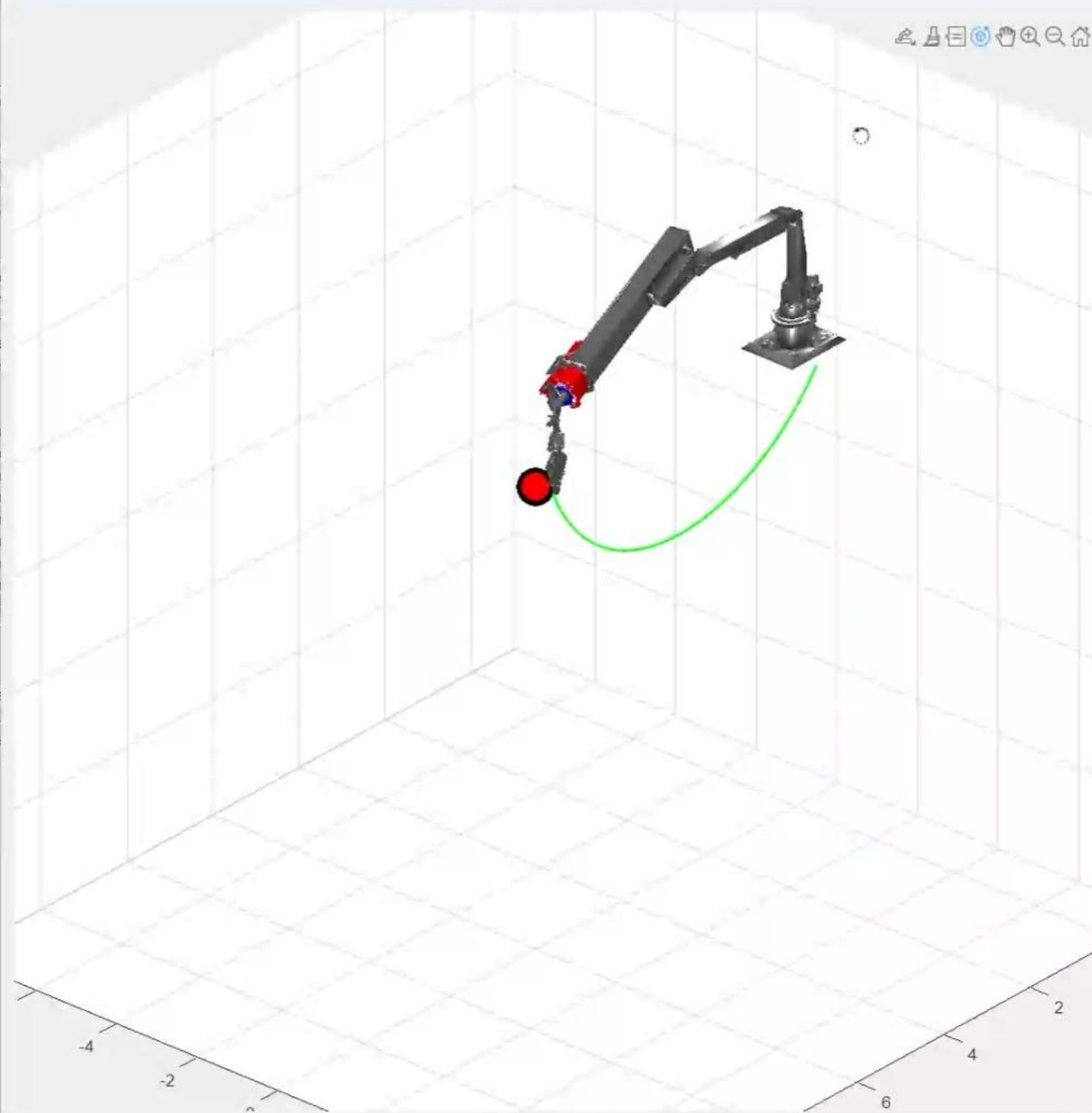
Rope Picker Robot (RPR)



About Rope Picker Robot (RPR)

- Reach 15 meter
- Height differences < 8 meter
- Artificial intelligence to recognize bolders on vessels and quays
- No deck personnel required
- Controlled from the bridge





Robot Control

X (mm): 6000 Y (mm): 0

Z (mm): 0 Mode: TRA...

Status: Drag mode enabled. Click and...

☐ Debug Mode☒ Enable Reflections

Move Robot

Disable Drag Mode

Park

Track

Open Simulink

Run Simulation

Start Sequence

Joint Control (Jog)

J1 (°): 9.074

J2 (°): 83

J3 (°): 28

J4 (mm): 830

J5 (°): 68.76

Apply Joint Values



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Demo RPR

- Learning
- Simulating
- Improving

Applications

- Autonomous Mooring
- Loading arms (LNG / Ammonium / Hydrogen)
- Charging Connectors

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RPR INSTALLATION

- Lay-out RPR
- Mooring line layout
- AI-camera positions
- Stored position

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Unmanned bunkering

Robotised marine loading arms

Ammonia

Hydrogen

LNG

Methanol

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The **LNG MARINE LOADING ARM** is developed to support shrinking and expanding occurrences in cryogenic applications. The state of the art material and the distinctive support frame design accommodates the warming up and cooling down process. Traditionally LNG arms are designed with cables and wheels: we improved the LNG marine loading arm design and integrated our rigid pantograph, an absolute operator's favourite since the balance does not need to be adjusted ever in the field.

FEATURES

- RIGID PANTOGRAPH
- SUPPORT CONSTRUCTION
- INTEGRATED BEARING
- CRYOGENIC ERS INSTALLED IN ABOUT 100 PLANTS AROUND THE WORLD



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Ship to Ship Bunkering



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AutoMooring

Hydraulic QC/DC

Hydraulic quick couplers off the possibility of connecting marine loading arm automatically to the the ships manifold by means from a single push button or autmatic command

- CENTRING GUIDE IN ORDER TO EASE ACTUAL MANIFOLD CONNECTION
- MANUAL RELEASE AT ALL TIMES





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Partner up with AMS