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Introduction of Mampaey

Mampaey Offshore Industries is the global market leader in the design, engineering, manufacturing and commissioning of berthing, mooring and towing systems. Over the years our dedication to serve our customers has resulted in several maritime innovations that have driven the new standards in the towing and mooring industry. The developments have contributed to our continuously expanding global customer base. All our products are designed and manufactured to safely withstand the toughest mechanical and environmental conditions.
Rapid, efficient and safe mooring within seconds instead of hours. Mampaey Offshore Industries has designed and developed this innovative mooring solution living up to our reputation as specialists and pioneers in mooring applications. The *intelligent* Dock Locking System® satisfies a growing need for faster and safer means of mooring. It is a compact and extremely flexible system.

The *intelligent* Dock Locking System® can be integrated on a wide variety of vessels and bunkering configurations (Ship Side) or ferry berths, quays and jetties (Shore Side) for any mooring situation demanded.
Quality Control and Customer Service

Project Management
From the moment you place a purchase order at Mampaey Offshore Industries our professional project management team will be your point of contact. This concerns the processes of engineering, development, calculations, manufacturing, assembly, certification, documentation, delivery, testing and commissioning.

We work with technical sales engineers, project managers and electrical and mechanical engineers who are all specialised in towing and mooring equipment to manage all projects with accurate know-how from beginning to end.

Testing & Certification
Mampaey Offshore Industries provides tests before delivery of all products. We assure that the product complies with the applicable specifications and standards. All tests are performed in close cooperation with our customers and witnessed by a third party (classification authority) surveyor if requested.

Classifications Products:
- Load Testing
- Factory Acceptance Test (FAT)
- Site Acceptance Test (SAT)
- Certification ATEX/ IEC Ex
- Certified Production Process

Mampaey Offshore Industries is ISO 9001 quality approved.

All systems can be supplied suitable for hazardous area with explosion proof certificates according to the standards such as ATEX/IEC Ex/UL/CU TR, etc.

Custom Solutions
Every mooring situation and each environment differs per case. For each project our engineers form a strategy to develop the best suitable auto-mooring solution for the customer’s demanded specifications.

Each project will have its own dedicated HPU. The magnet array is configurable to suit the customer’s application.
Automatic Mooring

The intelligent Dock Locking System® has the following fully automatic system features:

• Automated mooring procedures
• Constant real-time monitoring & control
• Combined sway, surge and yaw control
• Redundant & failsafe components
• Measuring mooring forces and vessel movements and automotive signaling system

The system

The intelligent Dock Locking System® uses a magnetic array connected to three vectored hydraulic cylinders mounted within a strong framework. Behind the frame is the Hydraulic Power Unit which also contains the Main Control Unit, PLC’s and communication modules.

The iDL® uses a specialized polymer as a friction material and permanent magnets which are moved by hydraulic cylinders to create a magnetic force between the vessel and the iDL® system. The multiple arranged magnets and the hydraulic cylinders are connected to the iDL® arm. This consists of three large hydraulic cylinders each having stoke and pressure measurements on them for determining the mooring forces and vessel movement. The pressure of each cylinder is used to calculate the surge, sway and heave forces the iDL® applies to the vessel.
Dynamic Mooring Analysis

Mooring has never been this easy and quick. Because the *intelligent* Dock Locking System® can sense the forces and positions of the vessel while mooring, the crew onsite can get comprehensive mooring statuses. The system provides real-time warnings if the mooring forces or movements are approaching their limits.

This enables us to ensure that the vessel will stay within a specified range. The impact of external effects can be compensated for automatically.

The measured mooring information can be monitored from anywhere.

We design the *intelligent* Dock Locking System® to withstand worst case operating scenarios. The system will withstand the worst motions and forces caused by external influences like passing vessel motions, wind, current and the break loads of trucks. For every situation a dynamic mooring analysis is performed. In this way, we assure the system is equipped for the client’s specifications and safety demands.
The Benefits of iDL®
For Ship and Shore Side

Safety improvements
• Less hazardous operations for shore personnel and deck crew, incidents reduced to minimum
• Real-time monitoring of mooring situation from any location and historical log access
• Immediate response to emergency situations enabled by the press of a button
• Redundant magnetism technique used maintains mooring connection even during power loss

Efficiency increase
• Faster mooring and quick release, reduced mooring time by 40%
• Automated control of ship position results in fuel saving for vessels
• Saving time by earlier start of transfer cargo and crew
• Independence from mooring crews or linesmen
• Rapid vessel and berth utilization
• Dependence on weather conditions reduced
• Precise mooring times for better planning

Durability
• Reducing fuel consumption and produced emission as propulsion is shut down earlier
• Cutting down costs for traditional mooring gear
• Minimal wear & tear of materials and minimal maintenance
• The magnets will never lose their power

Mooring in 10 seconds, unmooring in 5 seconds
Shore Side
Technical Information*

*Motions*

- **Sway range:** -150 mm to +300 mm
- **Heave range:** +800 mm to -800 mm
- **Surge range:** +150 mm up to -150 mm
- **Holding force:**
  - 320 kN in sway
  - 130 kN in surge
- **Wave impact height:** ± 450 mm
- **Roll motion:** ± 5°
- **Pitch motion:** ± 5°
- **Power Estimation:** 30 kW per iDL®

*iDL® Unit & HPU Weight Estimation*

- **iDL® Unit:** 3000 kg
- **HPU:** 2600 kg
- **Total:** 5600 kg

*Footprints and Heights*

**Frame on pontoon – excluding arm and magnet array**

- **Length:** 2250 mm
- **Width:** 2560 mm
- **Height:** 1660 mm

**Hydraulic Power Unit**

- **Length:** 2500 mm
- **Width:** 1950 mm
- **Height:** 1600 mm

*all technical information is subject to change dependent on specific mooring application and berth situation.*
Movement Direction

Degrees of freedom for positioning

Manipulator Arm Hydraulics
Hydraulics Power Unit
Pad Eye Connection
Frame
Magnet Pads Including Hydraulic Cylinder

z, heave
x, surge
y, sway

Force Direction

-80 kN mooring force in x, surge
+80 kN mooring force in x, surge
-80 kN mooring force in y, sway
Ship Side
Technical Information*

*all technical information is subject to change dependent on specific mooring application and berth situation.

**Motions**
- Holding force: 200 kN in sway, 40 kN in surge
- Heave range: +450 mm to -450 mm
- Distance range for coupling to ship: 900 mm
- Roll motion: +/- 5°
- Pitch motion: +/- 5°
- Power Estimation: 16 kW

**iDL® Unit & HPU Weight Estimation**
- iDL® Unit: 1600 kg

**Footprints and Heights**
**Frame on pontoon—excluding arm and magnet array**
- Length: 700 mm
- Width: 1060 mm
- Height: 2000 mm
Mooring Pad

Baseplate

Hydraulic pull-test and emergency push-off cylinder

Magnetic Module

Junction Box

Hydraulic Positioning Cylinders

Movement Direction

Degrees of freedom for positioning:
- z, heave
- x, sway
Our Offices and Agents near you

Head Office: The Netherlands