



## Manufacturing finishes on machinery prototypes developed as part of the SEA TERMINALS project for testing at the Noatum Container Terminal in Valencia

- **The first 100% electric terminal tractor developed in Europe for port operations**

**VALENCIA, Spain, July 9, 2015.-** The European SEA TERMINALS project led by the Fundación Valenciaport and involving the Port Authority of Valencia and Noatum will begin testing the first European prototype of a 100% electric terminal tractor, developed by Terberg, as well as a reach stacker and an empty container handler, both equipped with technologies to save fuel and reduce CO2 emissions, developed by Hyster (NACCO Materials Handling Group) in September. These pilots will take place at the facilities of the Noatum Container Terminal in Valencia.

To conduct these pilot tests, Terberg and Hyster have developed the aforementioned prototypes in their respective factories in the Netherlands. Terberg has faced various engineering challenges in manufacturing the prototype of the electric terminal tractor, such as the design of the energy transmission and storage system (lithium iron phosphate batteries), as well as the hydraulics system and the 24 volt mains connection for recharging the tractor. The electric vehicle prototype has zero local emissions of carbon and greenhouse gases, in contrast to traditional terminal tractors that run on diesel engines. Other notable features include the ability to operate in enclosed installations and low noise pollution, as well as sufficient autonomy for eight hour shifts thanks to the design of its battery pack.

Both the empty container handler and the reach stacker incorporate the latest technology for reducing the emissions of this type of machinery in port terminals, including a unique feature: dual function mode (eco or normal). This dual mode means the machines can function in low power and reduced speed mode (eco) under low operating conditions, helping limit their impact in terms of contaminating emissions and greenhouse gasses. The dual functioning of the machine can be controlled by remote control by the terminal operator, helping improve its operation. The two prototypes also include a start-stop system, LED lighting and telemetry monitoring of the machine's operational systems.

The three prototypes will be connected to the innovative operational management system that has also been developed as part of the project and implemented at the Noatum terminal (**SEAMS Platform**), making it possible to monitor the machines in real time and locate bottlenecks in the terminal's operation.



# SEAterminals



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The machines are due to arrive in Valencia at the end of August and the pilot tests are scheduled to run during September, October and November. Specifically, the pilot tests will allow for the verification of the capacity, autonomy and consumption of the prototypes under real work conditions in the demanding environment of a container port terminal with intensive work shifts at maximum load.

A public demonstration will also be organised at the Noatum Container Terminal in Valencia at the end of November to showcase the results of the six pilot tests conducted at the terminal. In addition to the three aforementioned machines and the real time Operational Management System (**SEAMS Platform**), Noatum will present the terminal's real time Dynamic Lighting System (**SEA-Lighting**) and a new hybrid generator for RTG cranes based on supercapacitor storage technology to the international port industry. This event will give attendees the opportunity to see the capabilities of these eco-efficient solutions in a real environment.

More information: [www.seaterminals.eu](http://www.seaterminals.eu)

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