

## PSA orders mega cranes for Singapore's Tuas Mega Port

PSA Singapore has ordered 24 huge STS cranes for its Tuas Mega Port project, along with 84 ASCs (or ARMGs) for the container yard.

Both the STS crane and ASC orders have been split between two OEMs. ZPMC and Hyundai Samho Heavy Industries Co will supply the STS cranes, while the ASCs will be produced by ZPMC and Wuxi Huadong Heavy Machinery (HDHM) – not to be confused with Qingdao Haixi Heavy-Duty Machinery Company (HHMC),

which is a separate firm.

For the STS order, ZPMC will build 20 STS cranes, and its electrical subsidiary ZPMC EZ will be responsible for the drives and controls. Hyundai Samho will supply four STS cranes with drives coming from Korea's Seoho. Both suppliers have an option, a further eight cranes from ZPMC, and four from Hyundai Samho. Hyundai will deliver its cranes by 2022.

The drives will have Siemens PLC and components, with motors from two possible

suppliers – Siemens and ABB. Seoho is a familiar partner for PSA Singapore, having been one of its main suppliers for new cranes and retrofit projects at Pasir Panjang in recent years.

The STS cranes are massive double-trolley units, with an outreach of 73m and a rail span of 35m. Lifting height is 55m and rail lifting capacity is 65t. PSA has previously announced that the cranes will be remote controlled.

In the yard, PSA has ordered 56 ASCs from ZPMC, and 28 from HDHM. ZPMC has an option for 22 additional cranes, but it is not known whether HDHM has an option. All the drives for the ASC cranes will be supplied by Seoho, again with Siemens PLCs and components.

HDHM is well known to PSA, having supplied ARMGs in 2018 for the PSA International terminal in Panama. HDHM has also supplied similar cranes for Busan Newport in Korea (six units in 2016).

As far as is known, none of the cranes will be fabricated in Singapore, something that PSA was understood to be exploring when it started looking for cranes for Tuas.

PSA has opted to use more than one supplier for each type of handling equipment for Tuas Mega Port (artist's impression)



## New containerised bulk system

Russia's KOTTA has unveiled its KOTTA Spreader attachment for opening its bottom-dump containers under a crane spreader.

At the Intermodal Europe exhibition in Rotterdam last November, KOTTA unveiled a new concept for containerised bulk logistics featuring special corrosion-resistant containers with a new bottom-dump mechanism that opens floor panels for unloading.

The company has now unveiled a new spreader attachment for activating the bottom-discharge mechanism. The KOTTA Spreader connects to a standard crane spreader via its twistlocks. Two additional twistlocks in the centre of the end beams activate the container floor opening mechanism.

The manufacturer envisages that its spreader will be integrated with a crane for both power and control signals in the future, depending on how the operator wants to use the system. Options include direct connection to an STS crane headblock or mobile harbour crane hook, which would reduce considerably the weight and power required for each crane cycle. The KOTTA Spreader pictured has a diesel hydraulic power pack, and is operated remotely to allow testing with different types of cranes and mobile equipment without requiring any integration or



The KOTTA Spreader activates the door opening mechanism in its bottom-dump bulk containers

modifications to the equipment.

KOTTA's technology is protected by patents covering the bottom-dump container design, the spreader to activate the bottom-dump mechanism, and the corrosion-resistant container lining. Together, they comprise a containerised bulk handling system that can manage bulk logistics in sealed containers without requiring a rotator to empty the containers. Bottom-dump containers cost more to manufacture than standard bulk materials containers, but with two KOTTA Spreaders, two containers could be handled at the same

time, doubling the shiploading rate when using 20ft containers, and eliminating the need for a system to remove and hold the container lid.

Fenix Ltd, which owns and operates Port Bronka in St Petersburg, where the concept is being tested, is backing the system. "The KOTTA project is specifically attractive because no further developments to the port infrastructure and port equipment will be required to adopt this technology," said Aleksey Shukletsov, executive director of Fenix. "This enables us to expand our prospects and attract various export bulk cargoes to the Russian ports that are not fully equipped with the specialist capacities of bulk terminals." Such cargoes include fertilisers and pig iron, which Russia has the potential to increase its exports of. Shukletsov added that developing containerised bulk logistics is extremely important for Port Bronka, "as it allows us to develop technologies and open up new opportunities for Russian transport logistics services".

KOTTA's bottom-dump concept appears at a time when there is growing interest in containerised systems for all types of bulk cargo logistics, in both special and standard containers (see pages 25-26).



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## Electric equipment rolls in

The pace at which electric container handling equipment is coming onto the market is picking up considerably. This month, at TOC Asia in Singapore, Sany announced a new electric empty container handler (ECH) and short-haul truck, while Kalmar has launched a new electric four-high empty handler.

Called the SDC E 90, Sany's new electric ECH is based on a 9t FLT and has a 331.7 kWh Lithium-ion battery, delivering up to 12 hours of autonomous operation in an empty handling application.

Based on 4,000 hours of operation per year, Sany claims its electric ECH can reduce total fuel costs by 70%, and the price premium over a diesel machine can be recouped in a year. The first unit is now in service at China's Xiamen port.

Sany also revealed a 6x4 battery-electric truck of the type that is commonly used instead of dedicated terminal tractors at many ports in China and elsewhere in Asia. This new Sany machine is called the SEV2503 and also features a 331.7 kWh Lithium-ion battery, in this case powering two electric motors driving a two-speed gearbox.

The SEV2503 can pull a full load of 67t at a maximum speed of 25 kph (30 kph empty). A dual port charging system delivers a slow charge time of two hours and a fast charging cycle of just 60 minutes. According to Sany, the battery can support up to 22 hours of operation with a total travel distance of up to 150 km. The company is offering a warranty on the battery for five years or 200,000 km. Several units are

in service today at different ports in China, including at Guangzhou where two machines are running in a three-shift operation and travelling 120-150 km per day. Power consumption per machine has been measured at 1.32-2.3 kWh/km. These units have air conditioning, which increases power consumption. Another machine at Wu Han is using 1.76 kWh/km, rising to 2.1 kWh/km when the vehicle heater is turned on in the winter.

Sany confirmed to *WorldCargo News* that it has built a fully electric 4x2 tractor prototype and plans to enter this market soon.

The electric Kalmar machine is another addition to its growing Eco Range. Based on the Kalmar ECG90-180 medium electric forklift, the new machine is designed to help customers reduce overall fuel costs and comply with increasingly strict airborne and noise emissions standards without

Kalmar's new electric four-high empty handler



compromising on performance.

It can stack containers up to four-high and is available with a choice of battery technologies. Fully charged, added Kalmar, the battery has enough power to last a full shift.

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