Cranes for heavy lifting

Demag cranes for trimodal handling

Demag overhead travelling cranes are used to lift heavy loads for the mechanical and plant engineering sector at the world's largest inland port in Duisburg. Transformers, turbines or entire production installations now start their journey from Duisburg to destinations all over the world. To ensure smooth operation in the new Heavy Lift Terminal Duisburg (HTD) and other freight-related logistics services, the decision was made to invest in crane systems. The same applies in the Nordhafen sector, where the range of services was extended from assembly and storage to logistics with the construction of a new packing bay.

Barge being loaded in the Heavy Lift Terminal

Cranes for the trimodal handling of heavy goods, e.g. generators

Handling heavy loads weighing up to 250 t on the quayside

With the aim of becoming a logistics hub also in the heavy-load sector, the duisport Group, together with partners in the Port of Duisburg, established a central location for the handling, storage and packing of heavy goods and unit loads.

The new Heavy Lift Terminal was built on a property in the outer harbour area, which measures approximately 12,000 m² in size. Until then, capacities for heavy goods in the Port of Duisburg had been limited, which had made it necessary to utilise other external locations. The creation of the heavy goods terminal in Duisburg has not only significantly improved services in the container sector, but also trimodal handling operations for heavy goods. Besides the shore operations, heavy loads are now also handled by cranes on the quayside, where everything is handled which does not fit in a standard container due to its size. HTD is operated by the duisport Group together with the transport company Spedition Kübler GmbH from Schwäbisch Hall and Kahl Schwerlast GmbH from the neighbouring town of Moers. Regular heavy-duty services by barge provide direct connections to the seaports in the Benelux countries and the north of Germany as well as via the south of Germany all the way to Bulgaria.

View of the terminal and rail connection from the shore

Starting recently, individual components from various suppliers are now also collected, packed and buffered in Duisburg for specific industry projects and then shipped direct to destinations all over Europe.

The HTD terminal features a heavy lift bay that measures 2,000 m² in size. The decision in favour of overhead travelling cranes was made at an early stage to ensure that the storage operation and other preparations for loading can be carried out in an environment protected from the weather. Weather-protection equipment such as a canopy for the open-winch units and a special paint finish for all components provide for smooth operation outdoors.

Four of the pillars that support the crane runway stand in the harbour basin. The 95.3 m-long crane runway extends beyond the quayside, which makes it possible to handle heavy loads weighing up to 250 t at the berth.

An onboard wind measuring device reports strong winds starting from wind strength 6 by means of acoustic and optical signals. The crane is then driven inside the protective bay within three minutes.

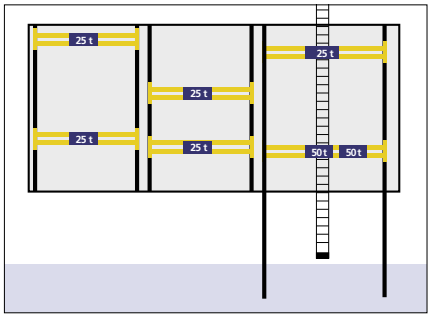
A double-girder overhead travelling crane equipped with a DR 20 wire rope hoist that is rated for loads weighing up to 25 t operates on the crane runway at a height of 13.6 m. This crane performs the storage and retrieval operations in the bay and is used for loading and unloading railway wagons and trucks.

If the installed crane capacity reaches its limits in some cases, duisport is well prepared for heavy lifting in the future. Components even weighing up to 500 t can be handled with the help of a mobile crane, which can be used on a special heavy load pallet.

Premiere at Duisport: tandem lift being performed by a mobile crane and a process crane

Heavy load trailers being unloaded at the Heavy Lift Terminal

dpl packing building: the crane runway extends into the harbour basin



Building layout for intermodal handling

+++ FACTBOX +++

duisport – the port
The Port of Duisburg (which operates under the brand name duisport) is located where the rivers Rhine and Ruhr meet and is the largest inland port in the world with turnover of 120 million tonnes of goods and added value of EUR 2 billion per year.

This trimodal logistics hub operates as a hinterland intersection for the seaports and as a gateway for goods traffic to central Europe. Besides goods handling, the duisport logistics location also offers a large number of logistics services.

Some 300 logistics-related companies are located at the Port of Duisburg. Duisburger Hafen AG is the company that owns and manages the Port of Duisburg. The duisport Group, to which the subsidiaries of Duisburger Hafen AG also belong, offers full-service packages in the infrastructure and suprastructure sectors including siting management for the port and for the logistics location. The duisport Group not only considers itself to be a partner for logistics companies, but also makes its own contributions towards optimising transport operation chains.

Services from a single source
The duisport packing logistics GmbH (dpl) subsidiary provides packing and transport services tailored to meet the individual requirements of industrial customers in the area of the Nordhafen. By offering these services, dpl complements those provided by the port group, which included the stuffing and stripping of containers as well as the seaworthy packing of large-volume or heavy goods. dpl has expanded its own range of services and adapted its processes to match those of the duisport Group. The company coordinates the entire logistics chain from the supplier's workbench to delivery on the construction site. dpl packs industrial goods to the value of more than EUR 1 billion every year.

Fit for outdoor operation: ZKKE with two wire rope hoists

Development of the area measuring a total of 45,000 m² already started in autumn 2007. In order to create space, the Nordhafen basin was first filled with 600,000 m³ of earth.

A building complex, consisting of 3 bays, is a central feature of the Nordhafen sector. The new packing building was erected next to a 7,000 m² multi-function building. In an area measuring 5,000 m², components for complex industrial installations are prepared for further transport in the packing building.

This building not only extends the possibilities for storing goods; its in-house crane capacities and the protected storage area also enable semi-finished and finished parts to be assembled and maintained. Two bridge cranes are installed in each of the three bays. A double-girder overhead travelling crane fitted with two 50 t hoist units travels in the first part of the building. By operating the hoists in tandem, this crane can also be used for transporting long materials. A 25 t ZKKE double-girder overhead travelling crane with a span of 22,000 mm also travels on the same runway. It offers lifting speeds from 0.3 to 5.3 m/min, cross-travel motions from 5 to 25 m/min and long-travel motions from 5 to 60 m/min. The 175 m-long crane runway in this building in the Nordhafen area also extends into the harbour basin. This enables ships to be loaded and unloaded direct and the area between the quay wall and the building can be fully utilised for storage. Both of the adjacent building areas are each equipped with identical 25 t double-girder overhead travelling cranes. Access for trucks was provided at the side of the building – parallel to the harbour basin – to allow goods to be loaded and unloaded on shore direct inside the building. The railway track passes through the building and ends at the quayside, which also facilitates trimodal handling in the Nordhafen sector.