

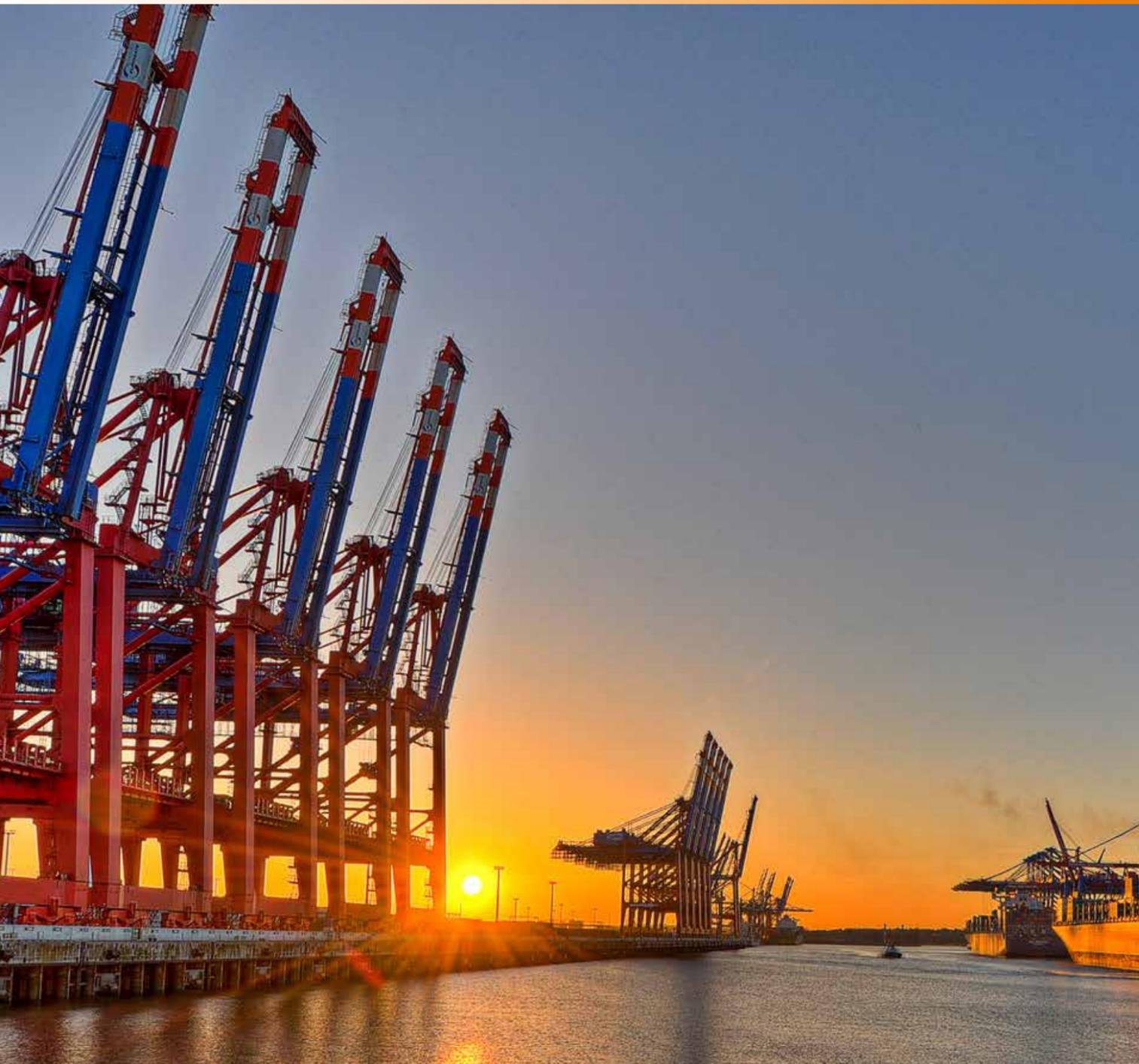
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## DRIVE SOLUTIONS FOR TERMINALS

CASE STUDY: WUHAN IRON AND STEEL



**Bulk goods transshipment  
at the Wugang harbour**

**Travel and conveyor drives  
for combined units  
and bridge cranes**

**Moves enormous loads**

**Low-maintenance  
and high durability**

**NORD bevel geared motors**

### NORD DRIVESYSTEMS Group

- Family business from Bargteheide near Hamburg with 4,000 employees
- Drive solutions for more than 100 branches of industry
- 7 production locations worldwide
- Present in 98 countries on 5 continents
- More information: [www.nord.com](http://www.nord.com)

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Since 2012, the steel giant WISCO is operating a new large transshipment port for iron ore in the East China Sea. At the terminals, geared motors from NORD DRIVESYSTEMS keep the raw material supply for inland plants running.

HARBOUR LOGISTICS  
Loading facilities



GEAR UNITS  
UNICASE bevel gear units

### PROJECT CHALLENGE

The production facilities of the Wuhan Iron and Steel Group Corporation (WISCO) are located in inland China. In order to quickly supply them with large quantities of raw materials the waterway across the Yangtze River is the only option. Imported ore reaches the East China Sea in huge ocean-going vessels. They must first be loaded onto smaller vessels that can travel the Yangtze up to Wuhan.

**Large transshipment port.** In order to handle the increasing demand on imported ore, WISCO and partners decided to build its own transfer port in the Zhoushan archipelago. The Wugang facilities started operations in 2012 and are WISCO's key material transshipment centre today. The port can unload 15 million tons of ore from large ocean-going vessels a year.

It offers an unloading berth with a water depth of 27 m where huge ships carrying up to 300,000 dwt can land. In addition, there are loading berths for smaller vessels.

**Gigantic terminals.** The ship loaders, ship unloaders and bucket-wheel stackers installed along the berths and yards in Wugang port are all the biggest equipment of their kind for civil use in China. They can handle up to 5,000 tons of ore per hour – as long as bridge cranes, conveyor lines and other machinery stay in motion. In case of major malfunctions, service specialists would have to travel long and difficult distances. Therefore, extremely high load tolerances, a long life and minimum maintenance requirements were mandatory for all loading machinery drive units.

### APPLICATION SOLUTION

The bulk handling machinery was supplied by different OEMs but are all fitted with drive solutions from NORD DRIVESYSTEMS. Three very large clamshell unloaders serve the berth for 300,000 dwt vessels. These machines are driven with a total of 72 three-stage bevel geared motors. Two massive mobile ship loaders are each equipped with 16 three-stage bevel geared motors and a two-stage bevel geared motor with helical teeth. To position these loaders as desired, the drives move the large systems on tracks running parallel to the berths. Another 72 three-stage bevel geared motors have been installed in the bucket wheel combination machines (500t/h) for the ore storage locations in the harbour.

**Completely resistant.** All geared motors in Wugang are equipped with

heavy-duty housings for outdoor use and tough climatic conditions. They are effectively protected against the entry of fluids and equipped with corrosion- and moisture-proof components. Special paints are used for protection against the salty atmosphere. In this way, the drive units are optimally protected against the conditions of the location. Thanks to their one-piece UNICASE housing design, these geared motors are particularly resistant to wear in spite of the enormous loads they have to handle permanently. Most units were fitted with application-specific, optional components – including dust-proof and corrosion-protected brakes, micro switches for continuous brake monitoring, and doubled protective covers for the motor fans. With these features, their very long service life gets even more reliable.



**Record holder.** The biggest loading facilities for civil use in China are located at the Wugang harbour.

### FOCUS ON THE CUSTOMER

With a yearly output of currently about 40 million tons, the Chinese Wuhan Iron and Steel Group Corporation (WISCO) is one of the largest producers of raw steel worldwide. The group also produces more than 30 million tons of raw iron and finished steel products a year. The company is located in the four million metropolis of Wuhan, on the Yangtze's middle course. WISCO is domestically operating several ore mines on its own, but is also dependent on huge quantities of imported raw materials.



### FOCUS ON THE PROJECT

In Wugang harbour, located about 250 kilometres south of Shanghai at the mouth of the Yangtze River, up to 15 million tons of imported iron ore are unloaded every year for the WISCO steelworks in Wuhan. More than 170 NORD geared motors ensure the reliable operation of the crane systems and bucket wheels, including:

- three grabs at a berth for 300,000 dwt vessels with
- a total of 72 three-stage bevel geared motors.

