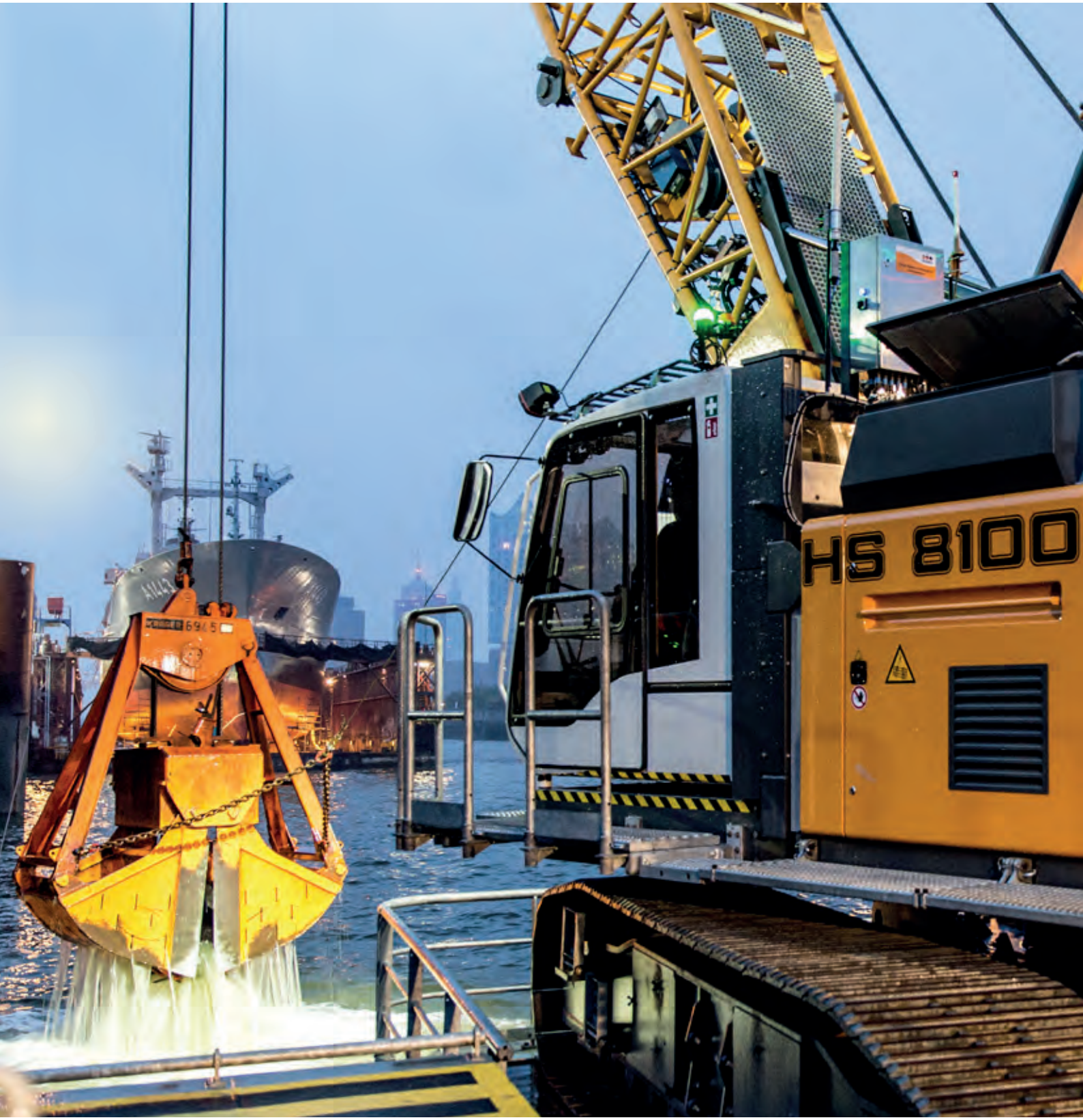
Job Report

Duty Cycle Crawler Crane

HS 8100 HD – Dredging



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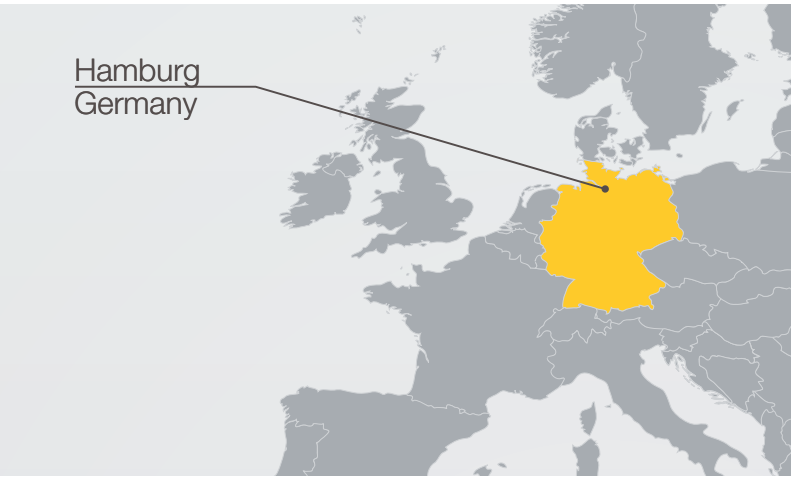

Situation

For years the Port of Hamburg has been fighting with sediment deposits, which cause receding water depths and, therefore, impede the shipping industry. The Hamburg Port Authority (HPA) must ensure a water depth of 23 metres for the smooth sailing of vessels. For this reason sediment, which is partially enriched with poisonous substances, has to be dredged, specially treated and, in some cases, disposed of in far-off waste sites. Furthermore, in addition to the sediment, larger stones and rubbish, such as metal parts must be removed.

Task

Approximately 4.75 million cubic metres of sediment must be removed from the Hamburg Port per annum and brought by barge to suitable treatment and disposal sites outside Hamburg. The average density of the extracted material is about 1.4 t/m³ (mud).

The challenge, which the HPA faces in carrying out this extraction work, is that the material must be extracted in the most environmentally friendly way possible. Storage in the port area is not possible due to lack of space and also for environmental reasons.

Solution

In order to further advance the dredging work in the Port of Hamburg the HPA chose a Liebherr duty cycle crawler crane, type HS 8100 HD. It is equipped with a mechanical clamshell bucket from the manufacturer Kröger, which has a filling capacity of approximately 3.5 m³. Through dredging with the aid of a duty cycle crawler crane the proportion of water during removal is kept under 10%. A further advantage is that not only sediment can be removed but also other waste material such as stones, metal and various bulky goods.

The duty cycle crawler crane works on the barge “Modi”, which was manufactured by the Dutch shipyard Ravestein-Schiffswerft.

Thanks to its flexibility the adjustable spud barge can be applied everywhere in the port. If necessary, the HS 8100 HD can also be driven on land and operated there.

In order to obtain an even more efficient dredging performance the HPA installed a special dredging management system, in addition to the duty cycle crawler crane’s Litronic control system. This system retrieves sensor data of the HS 8100 HD and serves as a positioning aid. Via monitor in the cab the operator sees at which point he has already dredged and also the respective digging depth.

Technical Data: HS 8100 HD – Dredging

Engine power:	390 kW / 523 hp	Max. boom length:	20 m
Max. winch power:	2 × 275 kN	Operating weight:	90 t

Liebherr-Werk Nenzing GmbH
Dr. Hans Liebherr Str. 1
6710 Nenzing/Austria
facebook.com/LiebherrConstruction
www.liebherrr.com