Magazine of ABI Group

ABI Gruppe News

News for customers, employees and suppliers



ABI MOBILRAM TM 13 Hybrid
DAC.Site
New model TM 19
DELMAG RH 50
and much more...

20
26
NOVEMBER

TM 13 Hybrid: From Concept to Construction Site

The prototype of the ABI hybrid machine passed its baptism by fire on a construction site in Frankfurt with flying colors.

The new TM 13 Hybrid combines the proven features of the TM 13 with alternative energy sources. The machine features a grid connection, a diesel-powered generator with 55 kW of power, and high-voltage batteries used to handle short-term peak loads. Its hydraulic attachments and motion functions are powered by three hydraulic pumps, each driven by an electric motor. Both the speed of the motors and the displacement of the hydraulic pumps are regulated according to demand, ensuring they operate within the most efficient range at all times.

The ABI MOBILRAM-System TM 13 Hybrid is equipped with four high-voltage batteries, each with a net capacity of 28 kWh. The number of batteries can be increased to six, and in the next machine, they are expected to have a capacity of 38 kWh. In addition, other high-voltage components such as fans, an air conditioning compressor, a cab heater, and a DC/DC converter are used.

The performance of the hybrid machine is comparable to that of a conventional TM 13 powered by a 209 kW engine. The installed electric motors can even deliver up to 40% more power for short periods. A 125 A grid connection is recommended for smooth operation. Operation with a lower-amp grid connection is possible, but should not fall below 63 A.



Project: Residential construction Hilgenfeld

Contractor: FEICKERT SPEZIALTIEFBAU GmbH, Weilburg / Lahn, Germany

Machinery:
ABI MOBILRAM TM 13 Hybrid
vibrator MRZV 16 VV, auger drive MDBA 4500-2

Procedure:
Pile driving and pre-drilling

Geology:
Loess and loess-loam soils underlain by clays, sands, silts, and gravels

The driver can adjust the grid connection power as needed. Set-up and moving on the job site, as well as the handling of pile elements, can be performed entirely on battery power.

With the TM 13 Hybrid, ABI demonstrates how proven pile-driving technology and alternative energy sources can be efficiently combined. Of particular note is the zero-emission operation on site when using a grid connection. Work, setup and movement functions can be powered by battery, while grid power enables high-performance operation with no local exhaust emissions and reduced noise, which is especially valuable on construction sites with strict emission-reduction and sustainability requirements.

Development Continues: TM 13 E

The experience gained provides the basis for further development. In future, a hybrid machine with two energy sources will become a construction machine with a purely electric drive system – a **TM 13 E**. With a spirit of innovation and a clear focus on the future, ABI is actively helping to shape the future of pile driving and drilling technology. The continuous development of alternative drive concepts contributes to more environmentally friendly work on construction sites. As a reliable partner, ABI supports its customers along this path – with personal assistance and up-to-date information on the next stages of development.

Photos: ABI MOBILRAM TM 13 Hybrid with vibrator MRZV 16 VV on job site in Frankfurt am Main, Germany (front, below)



First Construction Site Deployment of the TM 13 Hybrid

The ABI MOBILRAM TM 13 Hybrid completed its first project, carrying out two different tasks: constructing a shoring structure and installing a sheet pile wall in Frankfurt am Main. In particular, the changing soil conditions during the pile driving presented challenges for Feickert. DAC.Site was used extensively to comprehensively monitor and evaluate the work. Nearly seven million data points were recorded, automatically classified, and subsequently analyzed.

The work in northern Frankfurt took place in dry weather with temperatures ranging from 22 to 38 °C. On the approximately 17,7 hectare Hilgenfeld site on the Frankfurter Berg, ABG FRANKFURT HOLDING is developing a residential neighbourhood for about 2500 people. The plan calls for 54 apartment buildings with a total of 860 apartments. The site is located on the edge of the Nidda Valley, between existing residential areas and agricultural land.

In the first construction zone, the special civil engineering company Feickert was tasked with installing a soldier pile wall. Work in this area spanned three workdays. A total of 39 boreholes were drilled, and 39 beams ranging in length from 6.4 to 9.6 m were installed. The TM 13 Hybrid was operated for this purpose with an MRZV 16 VV vibrator and an MDBA 4500-2 auger drive. A 63 A grid connection was available for the electrical supply. The power supply line consisted of one 100 m and one 40 m cable, each with a cross-section of 5 × 35 mm².

Subsequently, pile driving work for the sheet pile wall was carried out in the second construction zone, which lasted 18 working days. The majority of the pile driving work consisted of installing 190 double steel sheet piles ranging in length from 7,5 to 9 m. In addition to 6 single steel sheet piles and 7 corner profiles, 120 bore holes were also drilled in the second section.

The highly variable soil conditions- consisting of loess and loess-loam soils overlying clay, sand, silt, and gravel- determined the machine's power requirements and the need for pre-drilling. In some areas, the sheet piles could be driven without any problems, while in other areas, further driving progress could not be achieved without pre-drilling. As a result, pre-drilling became a basis for installing the sheet pile wall in certain sections.

In practice, the TM13 Hybrid impresses with its quiet operation, which makes communication on site much easier. It operates similarly to a conventional TM 13, while offering even more power when needed. When running solely on grid connection, the machine operates with zero local emissions- that is, without exhaust fumes. To ensure a smooth workflow, the routing of the cables should be carefully planned at the start of the construction project. The machine operator says the trailing cable isn't a problem once you get used to it.

ABI would like to thank Feickert for the valuable feedback on the machine's use on the construction site and for the opportunity to extensively document the project.



Photo: ABI MOBILRAM TM 13 Hybrid with vibrator MRZV 16 VV driving beams

DAC.Site
– The Digital IoT Portal for Your Machine Fleet

DAC.Site stands for “Data Analytics on Construction Site” and is ABI Group’s web-based platform for the centralized monitoring, analysis, and documentation of machine and process data. Users can keep track of their entire fleet from any location via any internet-enabled device, without the need for a local installation. Clear dashboards, intuitive navigation, and integrated quick help features provide transparency into ongoing operations and support construction site planning and decision-making.

DAC.Site
Data Analytics on Construction Site

Key benefits at a glance

- **Centralized fleet overview**: Locations, machine status, operating hours, maintenance intervals, fuel levels, usage, and utilization clearly displayed.
- **Real-time monitoring**: Machine, process, and operational data updated at intervals of up to one second.
- **Analysis and tracking**: Historical data, usage trends, and error messages help identify trends, analyze malfunctions in a targeted manner, and reduce downtime.
- **Digital Documentation**: Flexible selection of production parameters, implement-specific analyses, and quick generation of daily logs and PDF documents.
- **Flexible Use**: Browser-based access via laptop, tablet, or smartphone; any number of users per customer.
- **Secure Data Storage**: GDPR-compliant hosting on servers in Germany, as well as regular security and functional updates.

Technology and Connectivity

The upgradeable hardware connects machines via LTE (2G/3G/4G) and supports positioning via GPS, GLONASS, and Galileo, while cellular roaming ensures extensive network coverage. In the event of connection interruptions, data is temporarily stored locally and automatically synchronized once connection is restored. F-series machines can be retrofitted, if they meet the necessary technical requirements.

License Models

The Standard License offers comprehensive fleet management with an overview of locations and status, operating hours, maintenance intervals, fuel levels, and information on usage and utilization. The Premium License supplements these features with, among other things, process data collection, historical data, error messages, advanced analytics, and flexible document generation with PDF export. When purchasing a brand-new ABI or DELMAG machine, the Premium License is included free of charge for three months. With the Rental add-on package, selected data and features can be activated for rental customers during the rental period. A separate license is required for each machine.

DAC.Site makes machine and job site data available at any time, easy to understand, and immediately usable - for greater transparency, more efficient processes, predictive maintenance, and end-to-end digital documentation.



Photo: ABI MOBILRAM TM 26 on pontoon in Cuxhaven, Germany (above, page 8)

New Sheet Pile Wall for the Old Fishing Harbour

The MOBILRAM TM 26 from Joachim Tiesler GmbH was used in the challenging marine engineering and special civil engineering project to completely renovate the quay facilities at the Old Fishing Harbour in Cuxhaven.

The new quay wall is approximately 1080 m long and used more than 3300 tonnes of sheet piles and 360 anchors. Particular care was taken in building the steel sheet pile wall directly in front of the existing quay. The wall also doubles as a large-scale heat exchanger, making it a central part of an innovative energy system.

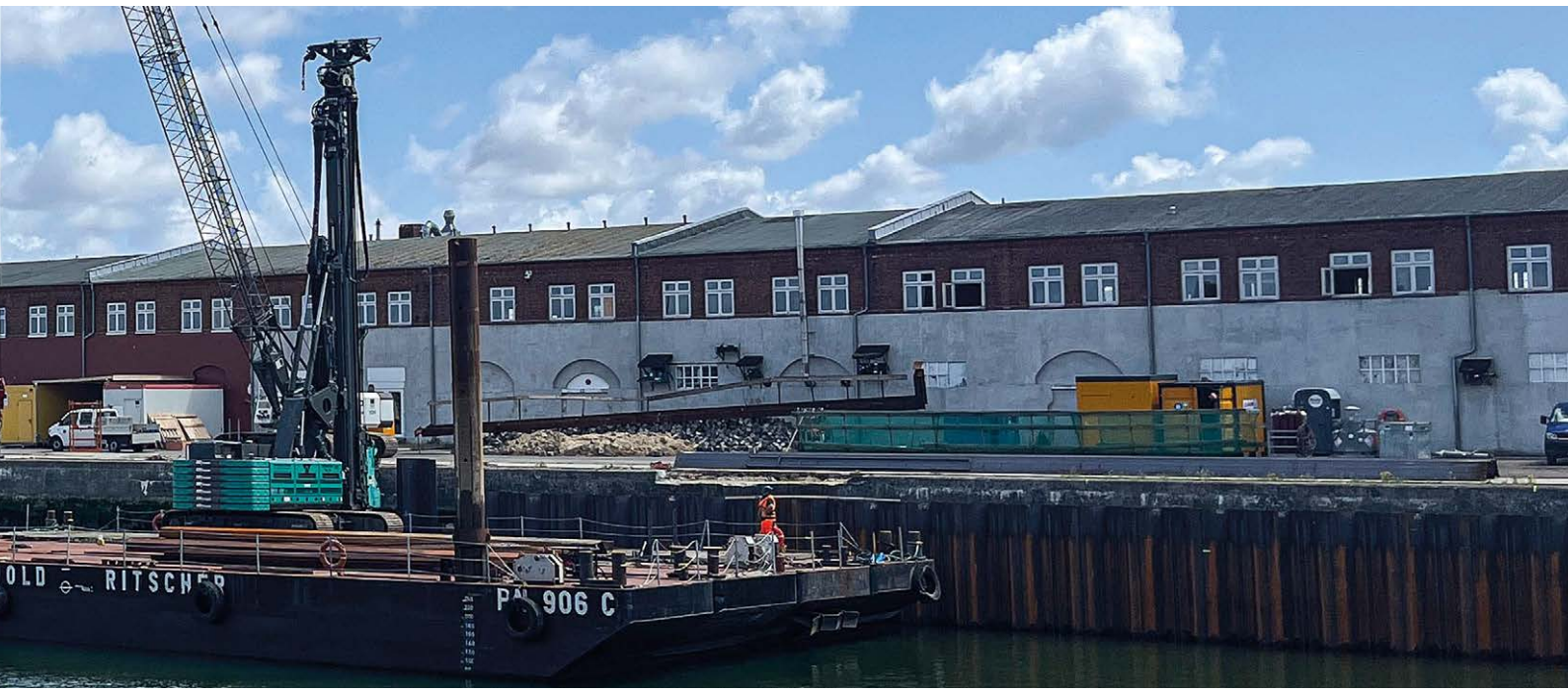
The entire sheet pile wall, with a length of approximately 1080 m, was constructed by Tiesler between early May and late August 2025, and the sheet pile wall area totaled more than 22500 m². A whole range of profiles like AZ28-750, AZ24-700, AZ32-750, and AZ30-750 in lengths of up to 23,5 m were used. The sheet piles were positioned using a cable excavator and then driven into place using the MOBILRAM TM 26 equipped with the MRZV 30 VV vibrator.

The sheet pile wall was installed from the water at a distance of 1,8 m from the approximately 100-year-old historic harbour structure. This approach took into account the limited space in the Old Fishing Harbour and, at the same time, allowed for the delivery and handling of large steel components across the harbour basin. The completed sheet pile wall was anchored in place with 360 anchors and subsequently reinforced with bracing.

A unique feature of the project is the additional use of the steel sheet pile wall for energy generation. A component that was needed for the repair of the quay anyway was designed as a thermally activated energy sheet pile wall. To achieve this, additional absorber tubes were attached to the landward rear side of the steel sheet piles, thereby transforming the sheet pile wall into a large-scale heat exchanger.

The technical principle is comparable to a near-surface geothermal system. A heat transfer fluid circulates through the absorber tubes and absorbs thermal energy from the environment. In the Cuxhaven project, the water in the harbour basin serves as the primary heat source. In combination with heat pumps, the thermal energy extracted there can be used in the future to provide heating and cooling for the harbour district.

For marine engineering, this represents an interesting advancement of a classic structural component: The steel sheet pile wall, previously used solely as a retai-



ning and load-bearing structure, is transformed into a multifunctional infrastructure element that combines load-bearing capacity and energy generation within a single structure.

Project: Energy sheet pile wall in the Old Fishing Harbour in Cuxhaven

Contractor: Joachim Tiesler Hoch- und Tiefbau GmbH & Co. KG, Elsfleth, Germany

Machinery:
ABI MOBILRAM TM 26
Vibrator MRZV 30 VV

Procedure:
Pile driving

Challenges:
Working from the pontoon, logistics, and a tight construction schedule



Photo: Anchored energy sheet pile wall in the Old Fishing Harbour in Cuxhaven


SENNEBOGEN
MOBILRAM
TM 28
295
Joachim Tiesler
AMBURG

Investing in the Future: Two New TM 19 for D&K

The special civil engineering company D&K has invested in two new ABI MOBILRAM-Systems TM 19.

The new TM 19 model is designed specifically for pile driving and shoring work. Depending on the attachment, its effective length exceeds 19 m. A 340 kW diesel engine provides the necessary power. Equipped with Efficiency Drive and a Docking-System, the telescopic leader mast is ideally suited for daily construction tasks.

Nine years, more than 11000 operating hours, and countless construction projects: The TM 14/17 V “Anna” has played a major role in D&K’s company history. As the first brand-new machine the company purchased from ABI, it became a faithful companion on countless construction sites. Now “Anna” is replaced by a worthy successor “Steffi,” the TM 19 with serial number 1. Rounding out a powerful duo, the TM 19 “Vanessa” joins the D&K fleet, replacing another TM 14/17 SL, “Lisa.” “Lisa” also has over 11000 operating hours under its belt and has reliably performed pile driving and drilling works for many years.



Photo: ABI MOBILRAM TM 19 with vibrator MRZV 22 VV, serial number 1 at the job site in Büchenbach (below, right)



The two new machines were delivered along with the corresponding attachments: MRZV 22 VV vibrators and MDBA 7000-2 auger drives. These are mounted using the well-known D6 Docking-System for quick and safe attachment changes, which also features an attachment recognition function. A 5 t winch on the leader mast head facilitates the handling of pile elements.

The cab and control system also reflect the latest state-of-the-art technology with modern assistance systems. The TM 19's primary application is pile driving. In addition, it is designed for CFA piles, stone columns, and the use of a diesel pile hammer. Visually, D&K remains true to its design philosophy: Like their predecessors, both TM 19 units feature the company's well-known, eye-catching color scheme.

First Real Job Site Test in Büchenbach

Shortly after being handed over, "Steffi" had to prove what she was capable of. Her first assignment took her to Büchenbach in early September 2026. There, a distribution structure with a flushing chamber and a sewer was being built between Jordangraben and Stiergraben. An excavation pit had to be prepared for a new distribution chamber constructed of in-situ concrete as well as an adjacent sewer structure.

The sheet pile wall and shoring work took about two weeks. The conditions were challenging: The excavation pit had to be installed down below the groundwater level in the immediate vicinity of large existing sewers.

Therefore, a watertight sheet pile wall with an internal bracing frame was selected. To ensure watertightness, the base of the sheet pile wall had to be embedded in the existing embankment. Particular attention was paid to protecting the existing sewer from settlement, as in some places the distance from the new sheet pile wall was only a few centimeters.

In total, approximately 900 m² of sheet pile wall had to be constructed using PU 12 double sheet piles ranging in length from 6 to 10 m. In the sensitive areas near the existing sewer, pre-drilling was not an option due to settlement concerns. Despite the low weight of the piling elements and the shallow depth, the new TM 19 with the MRZV 22 VV had to prove itself immediately in difficult soil conditions.

In areas where settlement was not a concern, pre-drilling with the MDBA 7000-2 significantly helped the installation of the sheet piles. Thus, "Steffi" demonstrated strength and flexibility in a construction project typical for D&K and contributed to the successful completion of the project.

ABI wishes the company many more successful projects and safe operations with its new machines.



Project: Büchenbach- Distribution structure with flushing chamber and sewer- Jordangraben and Stiergraben

Contractor: D&K Spezialtiefbau GmbH & Co. KG, Bad Grönenbach, Germany

Machinery:
ABI MOBILRAM TM 19,
Vibrator MRZV 22 VV, auger drive MDBA 7000-2

Procedure:
Pile driving and pre-drilling

Challenges:
Piling work in the immediate vicinity of existing sewers, with settlement issues



Photo: ABI MOBILRAM TM 19 with vibrator MRZV 22 VV, serial number 1 at the job site in Büchenbach (below, right)



Height matters: DELMAG RH 27

Working under the approach flight path to Bremen Airport, BWH's DELMAG RH 27 drill rig in short leader mast configuration, drilled the piles for the motorway link near Bremen.

Construction of the A281 in southern Bremen combined demanding infrastructure work with specific site constraints. To construct the retaining walls serving as protective structures along the A281 federal motorway for the client DEGES GmbH, the joint venture between Implenia Construction GmbH and Johann Bunte Bauunternehmung SE & Co. KG relied on a specially configured drill rig.

The A281 is much more than just another road construction project in Bremen. As the north-western link between the A1 and A27 motorways, it is intended to complete the motorway ring around the Hanseatic city, easing traffic on the A1 and A27 in particular, as well as on the city's main access roads. The link is therefore of considerable importance for freight transport, Bremen's ports and the airport.

The development first required extensive retaining walls supported by drilled pile foundations. As the site was located directly next to Bremen Airport, it presented particular challenges for special civil engineering. Proximity to the runway meant that the construction equipment used had to comply with a specified maximum height. This is a significant restriction for conventional large drill rigs, which must still provide sufficient power and torque for large drilling diameters and depths.



The RH 27, converted by BWH Bohrwerkzeuge Hoffmann of Hainichen to a short leader mast configuration, proved well suited to installing around 600 piles of 880 mm diameter. The piles were drilled vertically, with some inclined at a ratio of 6:1, to depths of around 12 m. In KMB II short leader mast configuration, the drill rig has a leader mast height of 10,43 m, meeting the specified maximum height of 10,50 m. BWH also supplied the necessary drilling tools and casing.

Installing numerous large-diameter drilled piles under strict height restrictions placed high demands on the equipment. On the A281, the available centimetres were just as crucial as the performance of the drill rig.

Project: A 281: Bremen Highway Junction—A new four-lane section to close the gap in the Bremen ring highway

Machinery:
DELMAG drill rig RH 27
with rotary head BT 270
in short leader mast operation

Procedure:
Kelly drilling with casing

Challenges:
Height restrictions due to the proximity to the runway at Bremen Airport



Photos: DELMAG RH 27 in short leader mast operation while Kelly drilling
Photo source: BWH Bohrwerkzeuge Hoffmann GmbH & Co. KG

Temporary Piles for a Project of the Century



During the second phase of the Deutsche Museum's modernization in Munich, the special civil engineering company Gebrüder Huber installed both temporary foundations and shoring measures.

One of the most challenging renovation projects in German cultural architecture is underway on Munich's Museum Island. Since October 2015, the Deutsches Museum's exhibitions have been revamped, and the museum building has undergone a fundamental modernization, both technically and structurally. The project is divided into two phases so that the museum can remain partially open during the work. The first phase, covering approximately 20000 m², reopened in July 2022. Since then, demolition, structural work, and renovation efforts have focused on the second half of the building; the entire modernization project is scheduled for completion in 2028.

For the temporary crane foundations, the DELMAG drill rig RH 20 installed four piles with a diameter of 880 mm. The piles reached approximately 12 m into the ground. For the soldier pile wall, 45 drill holes were subsequently drilled for HEB 500 steel beams to secure the future excavation pit. The choice of equipment, drilling diameter, and working depth had to be adapted to the limited space available in the museum courtyard and the ongoing use of Museum Island.

The special civil engineering team thus created the conditions necessary for work on the historic museum building without permanently encumbering Museum Island with additional foundation elements. Especially while the museum remains open to the public, the project demonstrates how closely structural engineering, construction methods, and logistics must be interlinked: The structure must be robust for the duration of construction — and then disappear without a trace afterward.

Photos: DELMAG drill rig RH 20 in the grounds of the Deutsches Museum in Munich (left and right)

Project: Modernisation of the Deutsches Museum in Munich

Contractor: Gebrüder Huber Spezialtiefbau GmbH, Neuried

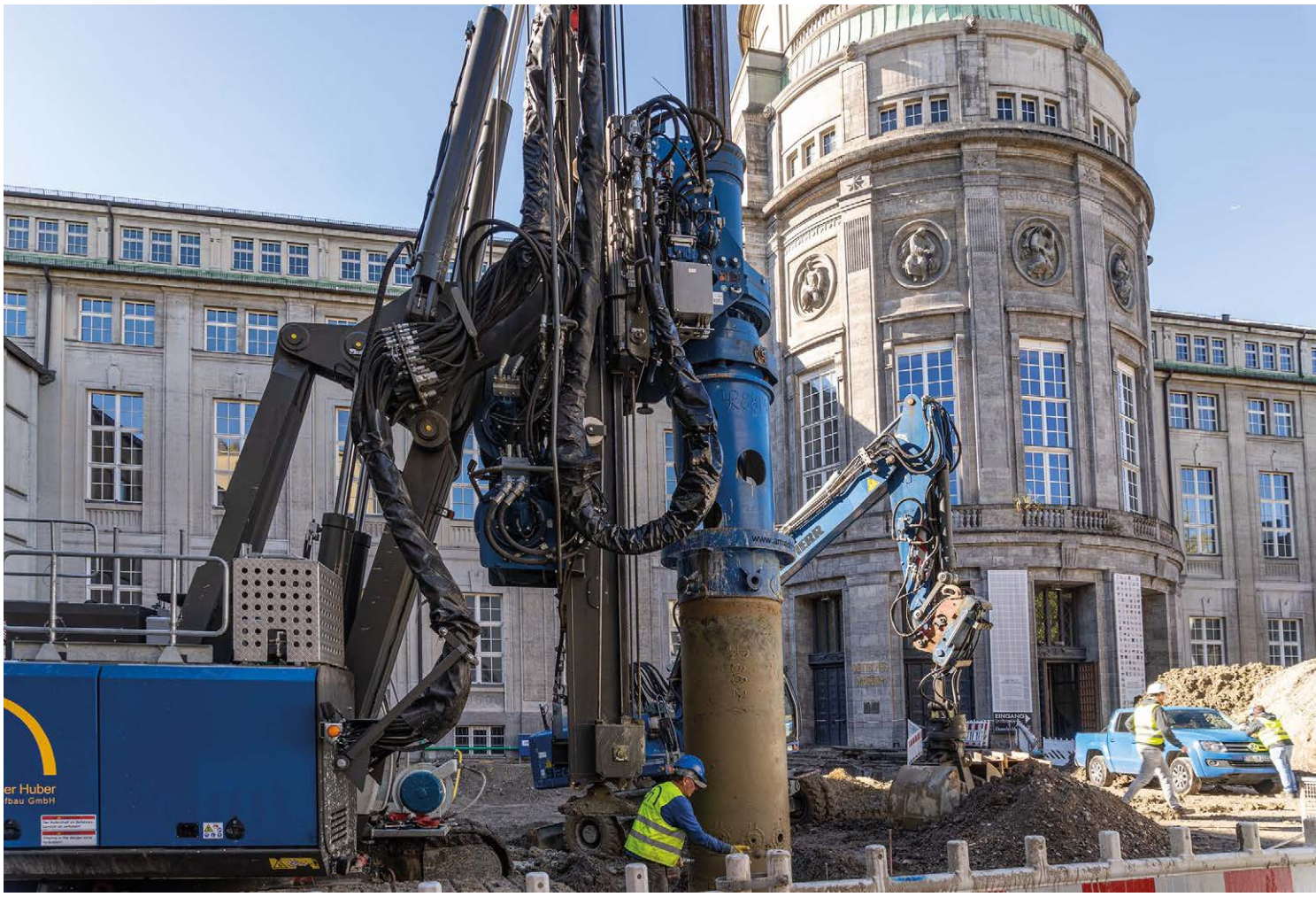
Machinery:
DELMAG drill rig RH 20
with rotary head BT 200

Procedure:
Kelly drilling with casing

Challenges:
Working near historic buildings, in limited spaces



Photo: The modernization efforts are continuing; the Deutsches Museum grounds in the summer of 2026 (right)
Photo source: Press Office, Deutsches Museum, Munich



ABI MOBILRAM TM 24: A Powerhouse for Demanding Special Civil Engineering Projects

Greater pulling force, high load bearing capacity, and yet compact transport dimensions: With the ABI MOBILRAM TM 24, ABI is expanding its line of telescopic leader masts.

During its first deployment on a construction site in Bad Wiessee on Lake Tegernsee, this new development immediately took on a task of extraordinary magnitude.

Customer Requests Lead to a New Machine

The development of the ABI MOBILRAM TM 24 arose from specific practical requirements. Within the product lineup, the new telescopic leader mast bridges the gap between the TM 22 and the TM 26. To achieve this, ABI combines proven design features from both series with performance specifications specifically tailored for demanding applications in special civil engineering.

In addition to demanding pile driving tasks, the design focused on significantly increasing pulling force and usable load while maintaining the high torque capacity of a TM 22, which is essential for the VDW method. The integrated HD-plus kinematics enables precise positioning of the leader mast and, together with the hydraulic extendable undercarriage, provi-



des the necessary stability. The SR 35 HD-plus with 470 kW and the SR 45 with 563 kW are available as carriers. The machine concept is rounded out by the well-known Docking-System D6, which allows attachments to be changed safely in no time at all.

Premiere on Lake Tegernsee

The TM 24 made its debut in Bad Wiessee. A. Wöhrl Spezialtiefbau GmbH carried out special civil engineering work directly on the shores of Lake Tegernsee for the “Hotel Seegut am Tegernsee” resort currently under construction there. According to the project information available at the time, it was Germany‘s largest hotel project. Approximately 18,000 m² of sheet piling was planned for the shoring alone.

The sheet piles used ranged in length from 14,5 to 22,0 m. The TM 24’s extended stroke proved particularly advantageous when handling the longest elements. Individual 21,5 m long steel sheet piles were installed quickly. However, speed alone was not the decisive factor: Since all the locks were sealed, the machine operator had to work with precision to ensure that the adjacent sheet pile, which had already been driven into place, was not pulled into the ground as well.

The shoring work began in December 2024 and was scheduled to continue until approximately July 2025. This very first deployment already made it clear what matters most in this machine class: Sufficient stroke for long piles, good stability, as well as high pulling force and torque capacity. At the same time, the dimensions must remain compact enough to ensure that transporting and setting up the machine on the construction site is practical.

Photos: ABI MOBILRAM TM 24 with vibrator MRZV 36 VV on lake Tegernsee while pile driving (below, below left, page 18+19)



Project: Seegut Hotel Complex on Lake Tegernsee

Contractor: A. Wöhrl Spezialtiefbau GmbH, Hohenwart

Machinery:
ABI MOBILRAM TM 24
Vibrator MRZV 36 VV

Procedure:
Piling with vibration

Challenges:
Watertightness of the sheet pile wall, precise alignment of the steel sheet piles





New Housing in Sachsenhausen

A high-quality apartment building with ten units and an underground parking garage is being constructed in solid construction on Steinle Street in Frankfurt.



Project: Apartment building with underground parking garage in Frankfurt am Main

Contractor:
HOCHTIEF Infrastructure

Machinery:
ABI MOBILRAM TM 16 with MRZV 22 VV
ABI MOBILRAM TM 20 with MDBA 4500

Procedure:
Piling with vibration
CFA drilling

Before the new building could rise, extensive work was required on the approximately 1250 m² lot to prepare the excavation pit and building site. To secure the excavation pit, HOCHTIEF Infrastructure relied on an ABI MOBILRAM TM 16 equipped with the MRZV 22 VV vibrator and the SKZ 1120 clamp assembly. The machine for the shoring work was rented from TWF.

Its task: to drive the steel beams into the ground for a soldier pile wall. Approximately 60 HEB 400 beams, ranging in length from 9 to 10 m and spaced about 2,5 m apart, were installed. Where ground conditions required it, pre-drilling was carried out in sections before the steel beams were driven into the ground using vibration. Together with the infill installed later, the shoring provided temporary stabilization for the excavation pit, thereby creating the conditions necessary for controlled excavation.

After the excavation was completed, the next ABI machine arrived on the construction site: a TM 20. It installed approximately 450 CFA piles to improve the soil. The TM 20 from HOCHTIEF Infrastructure was equipped with an MDBA 4500 auger drive featuring a concrete swivel and augers with a diameter of approximately 550 mm. The nearly 3 m long CFA piles were installed in a tight grid, and pile installation progressed rapidly at a daily rate of about 60 piles.

Both machines operated reliably, and built-in features-such as the Docking-System- facilitated the execution of the tasks. This allowed for rapid pre-drilling during the first construction phase of the soldier beam wall without significant interruptions. The precise positioning of the leader mast, thanks to its agile kinematics and swiveling function, also contributed to the smooth execution of the foundation work.

Photos: ABI MOBILRAM TM 16 with vibrator MRZV 16 VV while driving beams (left)
ABI MOBILRAM TM 20 with auger drive MDBA 4500 drilling CFA piles (below)



TM 26 – a Large Machine for a Large Project

At the construction site of the First Levensau High Bridge, it is becoming clear how a new structure is slowly taking shape from many individual steps. In November 2024, the focus in Lot 4 was on numerous foundation works, including the installation of 23.5 m long beams beneath the historic bridge.



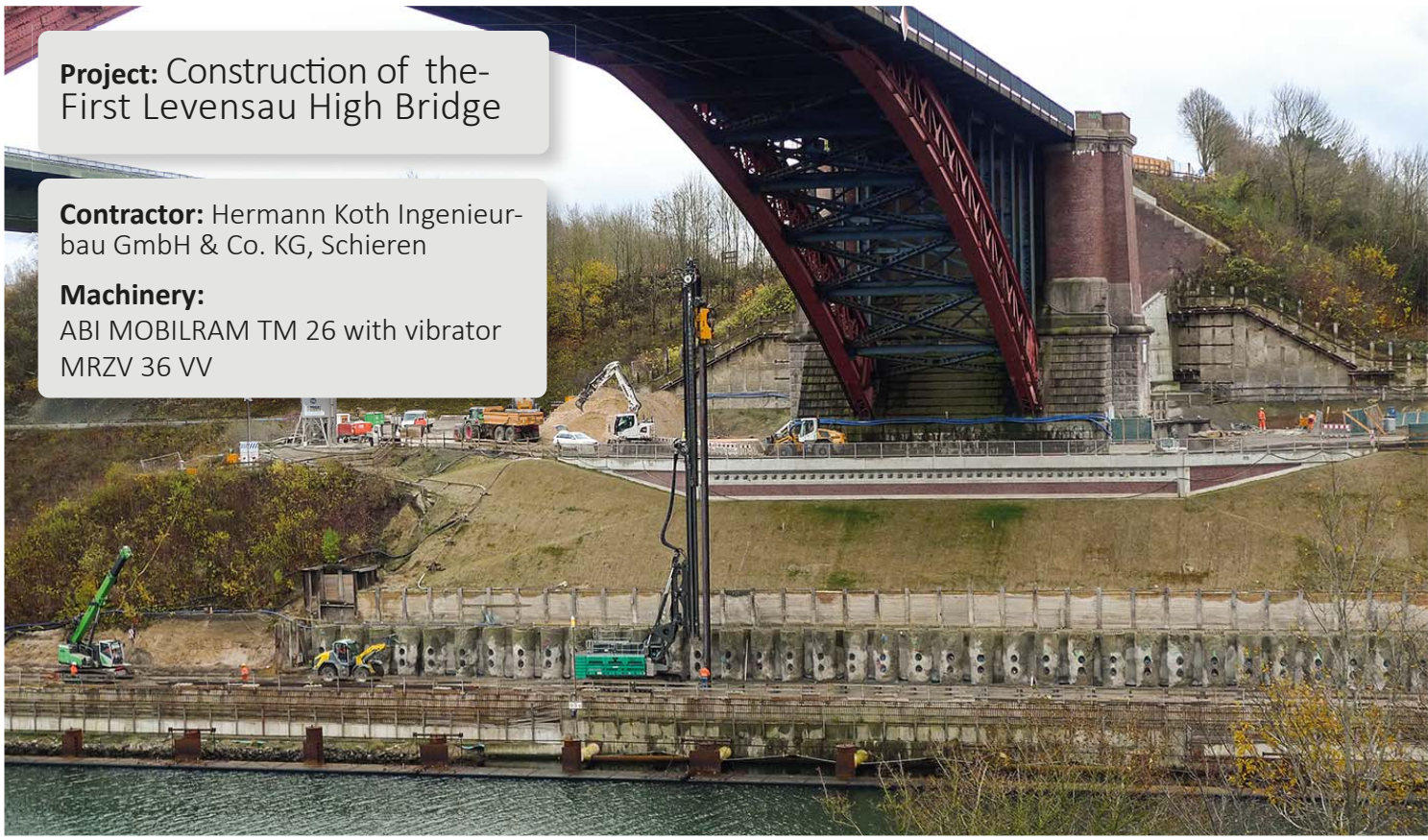
Built in 1894, the First Levensau High Bridge is the oldest bridge spanning the Kiel Canal and connects County Road 24 as well as the Kiel–Eckernförde rail line. As it has reached the end of its technical service life, it is being replaced by a new structure at the same location, which is designed to evoke the historic bridge while also meeting modern requirements for road, rail, pedestrian, and bicycle traffic. Adjusting the clearance profile is intended to eliminate existing restrictions on shipping and enable two-way traffic, even for larger vessels, in the future.

MOBILRAM TM 26 was used at the southern abutment. While the historic abutment will be preserved and is intended to continue serving as a winter roost for bats, extensive safety measures - such as the creation of work and safety platforms on the existing structure- had to be implemented. After the installation of large drilled piles with a diameter of 1,5 m and a length of more than 35 m, the TM 26 installed a total of 41 HEM700 beams, each 23,5 m long, to form a soldier pile wall. Additionally, the existing geology- characterized by alternating layers of sand and marl with varying densities posed a challenge.

The 7 t heavy beams were driven to the specified depth using an MRZV 36 VV vibrator. Handling the heavy beams was only possible thanks to additional modifications developed specifically for the project.

The contractor, Hermann Koth of Schieren, was pleased with the rapid progress of the pile driving work, which was completed within 5 days. The pile driving work required a machine with a long usable length, so Hermann Koth rented the MOBILRAM TM 26 from industry colleague Joachim Tiesler Hoch- und Tiefbau.

Photos: ABI MOBILRAM TM 26 under the First Levensau High Bridge while driving beams (left and right above)



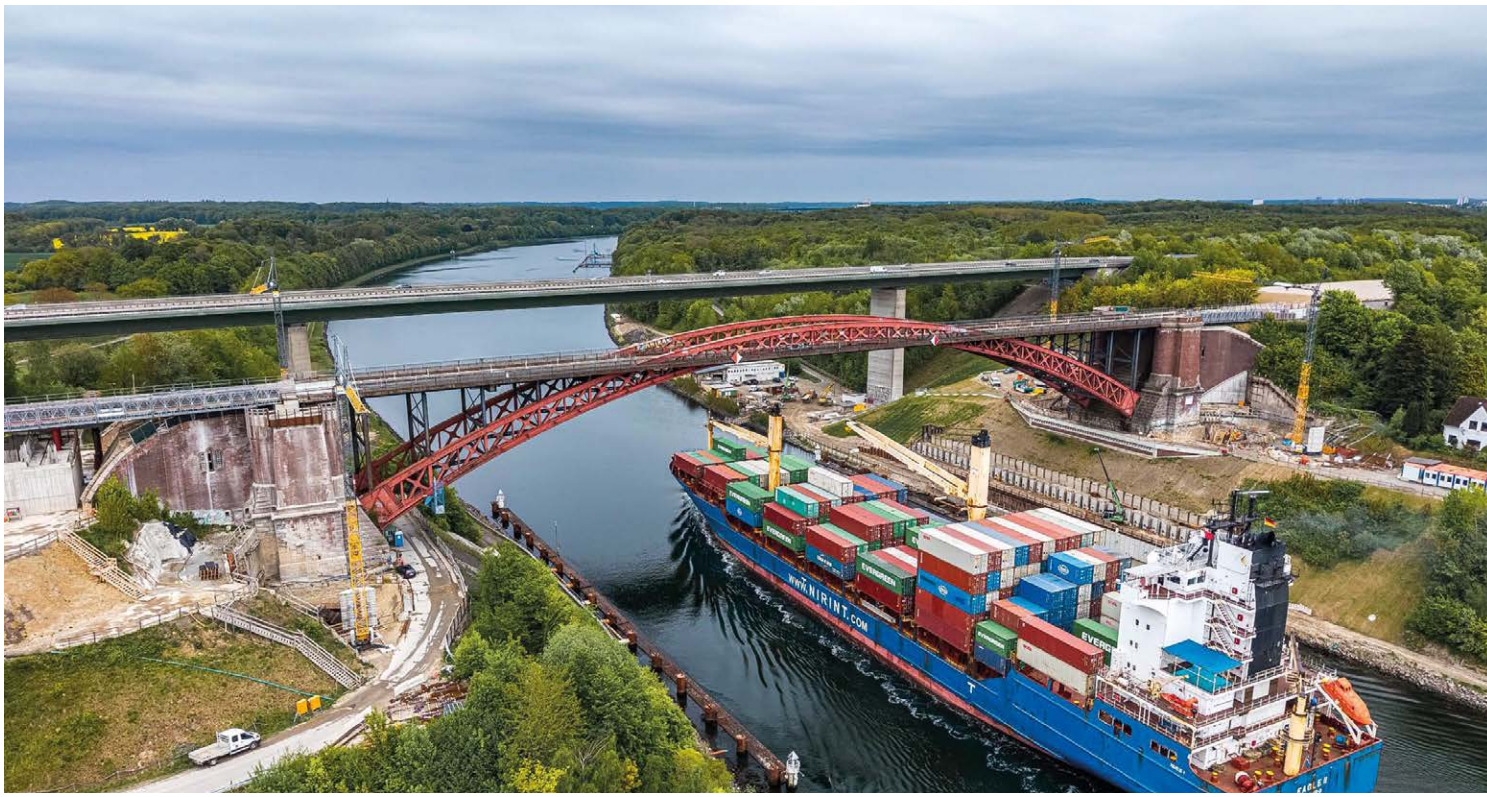
Project: Construction of the First Levensau High Bridge

Contractor: Hermann Koth Ingenieurbau GmbH & Co. KG, Schieren

Machinery:
ABI MOBILRAM TM 26 with vibrator MRZV 36 VV

Completion is scheduled for late 2027. The new bridge will play a key role in improving traffic safety, reducing transit times on the Kiel Canal, and ensuring the long-term capacity and sustainability of this important transportation corridor.

Photo: Construction is moving forward; a view of the construction site in May 2026 (below)
Photo source: WNA NOK / Bernot



Versatility and Efficiency – Job Site Reports from the United Kingdom

ABI MOBILRAM TM 13 – Ground Improvement with Stone Columns



Vibro stone columns are a commonly used method for ground improvement. These relatively short piles are used to stabilize areas with weak, variable, or backfilled soil and to reduce the soil's susceptibility to settlement by introducing additional soil material and compacting it. Typically, the areas are treated to a depth of about 4 to 6 m.

For this type of work, customers of ABI Equipment Ltd. prefer to use the ABI MOBILRAM TM 13. Thanks to its low weight, the machine is easy to transport and achieves high production rates while operating efficiently and at low noise levels.

In the applications described, fuel consumption remained consistently low at just 120 l per day, while more than 150 columns were produced during the same period.

The compact yet powerful TM 13 features a 209 kW diesel engine that meets Stage V emissions standards. Combined with the ABI Efficiency Drive and the MRZV 16 VV vibrator - which offers variable static moment as well as variable hydraulic displacement- it is ideally suited for such applications.

Particularly for ground improvement projects involving relatively short pile lengths, the combination of a compact design, high mobility, and powerful vibration technology enables efficient construction site operations.

Photos: ABI MOBILRAM TM 13 while installing vibro stone columns (left)
ABI MOBILRAM TM 20 driving steel sheet piles along the railway embankment (below and right)





Railway Construction – Sheet Pile Installation in Challenging Conditions with the TM 20

Another example of driving application comes from a railway project in Northamptonshire. Here, an ABI MOBILRAM TM 20 was used to install a steel sheet pile wall.

The structure, located practically on the doorstep of ABI's UK subsidiary's headquarters, serves to stabilize the slope of a railway embankment. The existing soil conditions consisted of made ground over mudstone. Due to these geotechnical conditions, pre-drilling along the planned sheet pile wall was necessary before the steel sheet piles could be installed.

The TM 20 used for this project is equipped as standard with the D6 Docking-System, which enabled particularly quick switching between the vibrator and the auger drive.

The MRZV 36 VV vibrator was used to install a total of 455 AZ26-700 double steel sheet piles. The 10 m long double sheet piles were interlocked with 4 m long single sheet piles to allow for water drainage.

This application impressively demonstrates the advantages of the Docking-System: Instead of using two machines for pre-drilling and sheet pile installation, both work steps could be carried out with the same MOBILRAM.

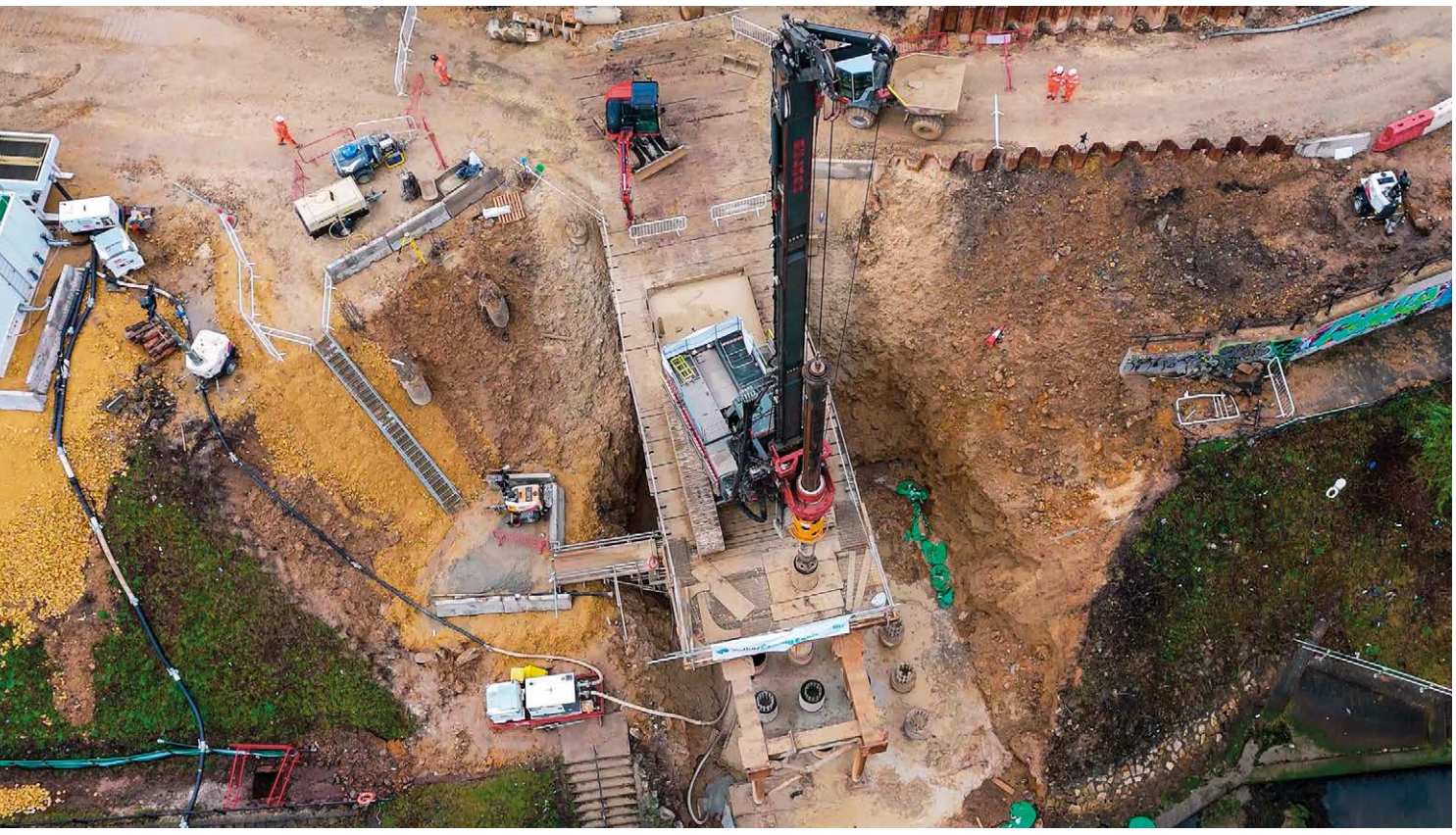
DELMAG Drill Rig Constructs an High-level Bridge

Volker Ground Engineering relied on a DELMAG RH 34 drill rig for the construction of the new high-level pedestrian and cycleway bridge over the River Wear in Sunderland.

The new bridge is part of the Riverside Master Plan and connects the city center with the Sheepfolds neighbourhood. Named the Keel Crossing it is 250 m long, 10 m wide and 30 m high.

The 16 m long foundation piles for the northern bridge pier were driven using the Kelly drilling method. Working from a platform located 10 m above the pile head level presented a challenge. In addition, the work had to account for the influence of the tides affecting the river at this location. The soil consisted primarily of limestone from cut off level down to pile toe level.





Photos: DELMAG drill rig RH 34 working from a platform on the river Wear in Sunderland

Port Development in Lowestoft: TM 20 and TM 22 in Action

ABI MOBILRAMs were chosen to assist with port development works at Lowestoft in the UK. Three new berths and a land reclamation area were constructed using a steel combi-wall with tie rods and anchor piles. Work was undertaken in two phases.

Phase 1: ABI MOBILRAM TM 20 with MRZV 30 VV vibrator, MZK 1200 combi clamp assembly and auger drive.

A total of 92 pipes, each with a diameter of 762 mm and a length of 7,6 m, were installed for the berths.

The combi clamp assembly ensured optimal force transmission to the pile material, thereby contributing to rapid pile driving progress. After switching to the auger drive, the upper 3 m of each pile were drilled out using a 600 mm auger.

Phase 2: ABI MOBILRAM TM 22 with MRZV 30 VV vibrator and auger drive

During the second construction phase, steel pipes with diameters of 762 mm and 914 mm and lengths ranging from 7,9 m to 15,8 m were installed. Here, too, clamping was performed using the MZK 1200 combi clamp assembly. All piles were driven to the required final depth and were subsequently drilled out and secured with tie rods, as in Phase 1.

In addition, the TM 22 installed 305x305x88 support beams with a length of 21,6 m. The standard SKZ 1120 clamp assembly was used to clamp the H-beams. The beams were delivered to the construction site in two sections and welded together on site.

Interestingly, in some locations, the TM 22 was required to install piles with their tops being well below the rig's working platform level (so called 'subterranean piling'). The rig was able to take this work in its stride, demonstrating its ability to handle unusual installation situations.

The projects presented here show the wide range of demands placed on modern special civil engineering, and how important it is to choose the right machinery. ABI Equipment Ltd supports customers on projects of every scale, from small construction jobs to major infrastructure schemes, and has ABI MOBILRAM-Systems and DELMAG drill rigs available for hire throughout the UK.



Photo: ABI MOBILRAM TM 22 with vibrator MRZV 30 VV and combi clamp assembly MZK driving pipes



Photo: ABI MOBILRAM TM 22 with vibrator MRZV 30 VV and clamp assembly SKZ 1120 driving beams

Under Power Lines: Soil Mixing for 7th Street in Oakland

As part of the "7th Street Grade Separation East" project in Oakland, California, a new underpass is being built beneath the Union Pacific Railroad tracks. For the lowered roadway, the company Raito is manufacturing load-bearing, steel-reinforced piles.

Through the "7th Street Grade Separation East" project, the Alameda County Transportation Commission, the City of Oakland, and the Port of Oakland are modernizing a central transportation hub in the port area. The existing railroad underpass and the accompanying multipurpose path between I-880 and Maritime Street are being realigned and expanded to provide modern clearance heights and widths for truck traffic. As part of the GoPort program, this project improves the reliability and safety of port access for rail, road, bicycle, and pedestrian traffic. At the same time, it aims to reduce bottlenecks, strengthen the connection to the Bay Trail, lower emissions, and support the economic development of the port area.

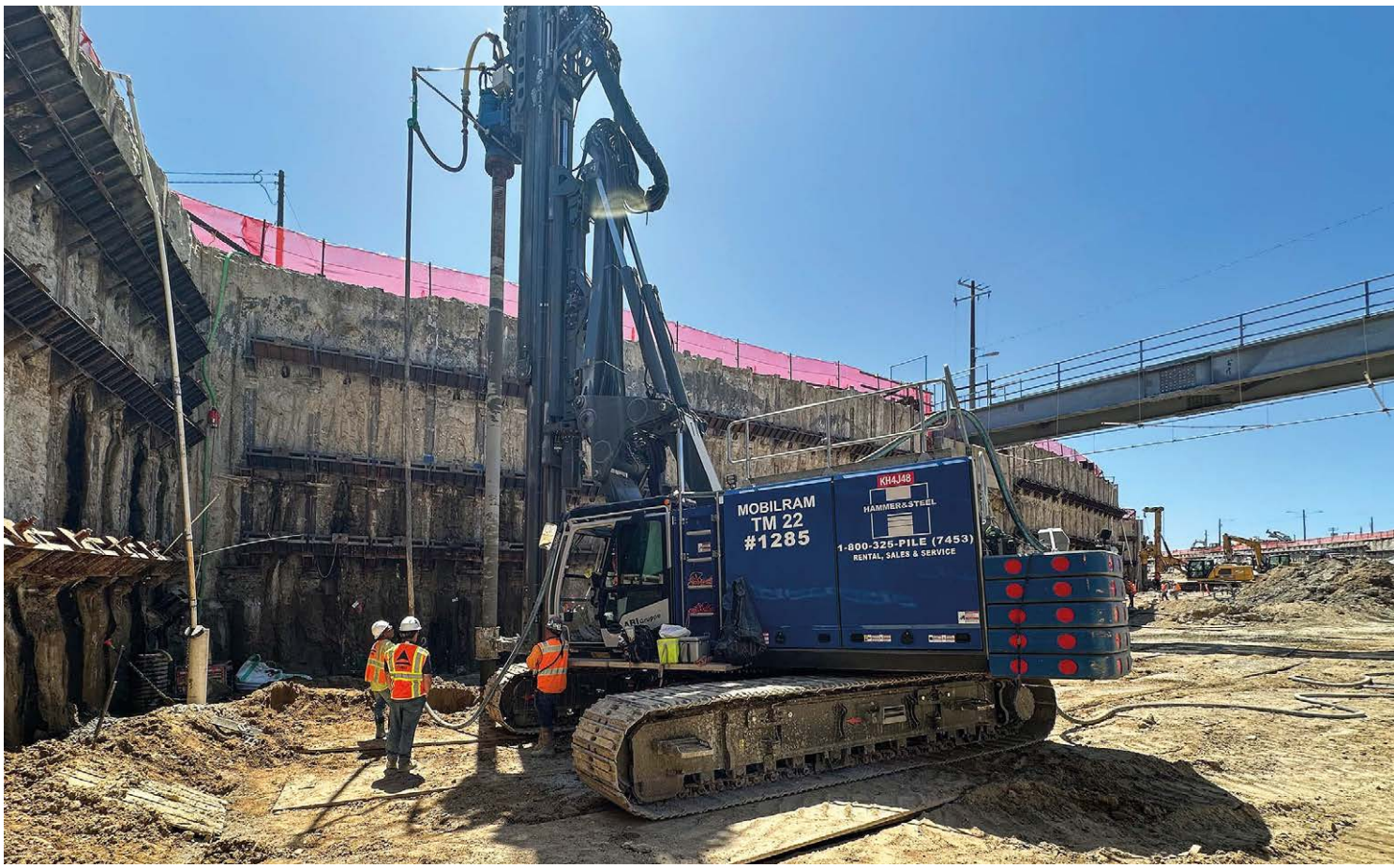


Photos: ABI MOBILRAM TM 22 with auger drive RHP 150S while soil mixing in California (above and right)

In the area of the lowered roadway, the buoyancy forces acting on the base slab must be permanently absorbed. To achieve this, soil mixing piles approximately 9,1 m deep and with a diameter of about 910 mm are being installed and reinforced with steel sections. As anchor piles, they secure the base of the trough structure in the subsoil.

In areas without space restrictions, the Raito team used an ABI MOBILRAM TM 22 equipped with an RHP 150S auger drive from ABI sales and service partner Hammer & Steel. Depending on the section, this allowed them to install 10 to 18 piles per day. The available rotational speed and torque of the auger drive were key to this high output. According to the contractor, this allowed them to install an average of two more piles per day than originally estimated.

A particular challenge was a section located directly beneath an active railway power line that could not be shut down during the work. To maintain the required distance of more than 4,6 m from the line while still reaching the necessary pile depth, the team switched to the more compact ABI MOBILRAM TM 14/17 equipped with an MDBA 7000-2 auger drive. The tool, monitoring system, and concrete swivel were transferred from the TM 22 to the smaller machine for this purpose.



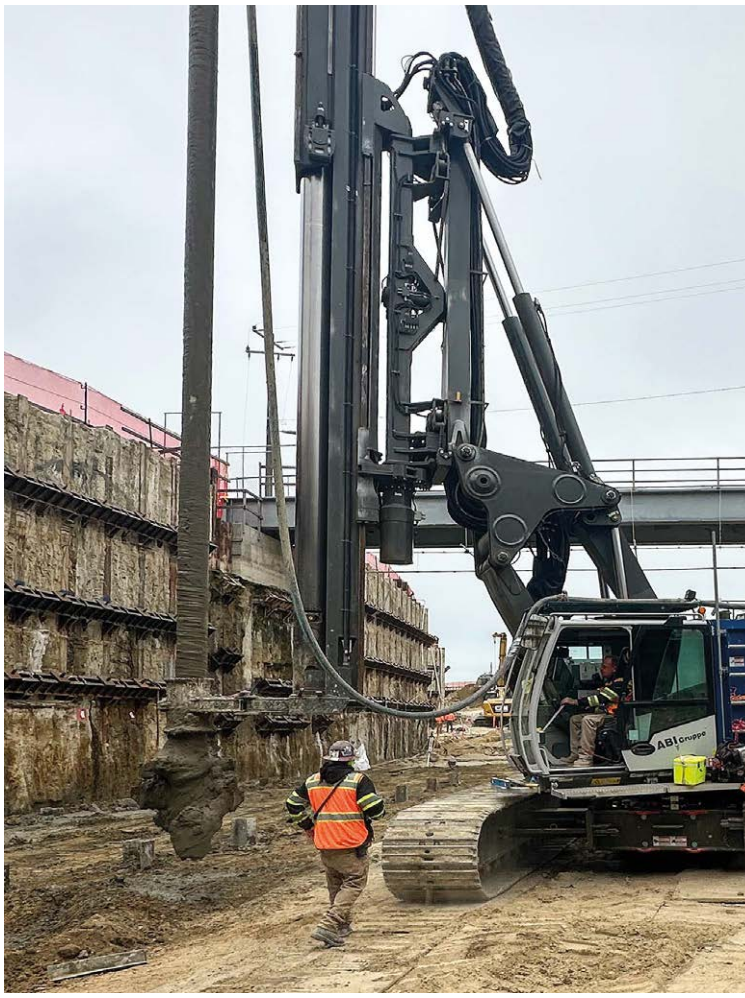
In addition to the reduced overall height, the leader mast kinematics proved to be an advantage. The reach, leader mast adjustment, and slewing function made it easier to drive piles in corners and narrow work corridors that would have been difficult to access with a conventional drill rig. Hammer & Steel also supplied compatible couplings for drill rods and concrete hoses, as well as a monitoring system.

The soil mixing work took a total of six months. According to the construction site team, minor technical malfunctions were quickly resolved with the support of Hammer & Steel's service technicians. As a result, the equipment remained operational even under challenging conditions.

Project: 7th Street Grade Separation East, Oakland , California

Maschinery:
ABI MOBILRAM TM 22 with auger drive RHP 150S
ABI MOBILRAM TM 14/17 with auger drive MDBA 7000

Procedure:
Soil mixing



Thulba Valley Bridge: Built Deep into the Rock

One of the most striking bridge structures on the new A7 is being built between the Bad Kissingen/Oberthulba and Hammelburg interchanges.

The foundation for the new structure requires reliable and high-performance machinery. The special civil engineering company GBS relied on its RH 38 for this project. The new bridge piers are founded on large-diameter drilled piles, which had to be drilled through the existing foundations. To prevent unwanted skin friction between the new piles and the old concrete, the massive existing foundations were first drilled through to a diameter of 1800 mm. In the process, the drilling equipment worked its way through approximately eight to ten meters of concrete that was decades old.

After drilling through, the holes were backfilled. Only then could the new piles, with a diameter of 1500 mm, be driven into place. Depending on the location, they reach lengths between 20 and 28 m. To ensure safe load transfer, each completed pile extends approximately four to six meters deep into the load-bearing rock layer. This creates a load-bearing foundation



Photo: DELMAG drill rig RH 38 while Kelly drilling near Thulba Valley Bridge

system beneath the structure that will later be visible, permanently transferring the enormous forces from the superstructure into the ground. The drilling work posed a challenge for the machinery and drilling tools used. The Kelly drilling method was used, but for the holes in the concrete, the standard auger had to be replaced with a core drill.

The new bridge, being built on the completed foundation, will be 460 m long and will cross the valley in seven spans. The structure, made of steel-concrete composite box girders, rises up to 53 m above the ground. The steel-concrete composite box girders are assembled using the incremental launching method, and the deck slab is cast using formwork carriages. Later, part of the superstructure will be moved transversely into its final position.

According to Autobahn GmbH, the federal government is investing approximately 102 million Euros in the renovation. The project clearly demonstrates that the critical work involved in building a new bridge often begins deep below ground level: With the pile foundation installed by GBS, the new Thulba Valley Bridge will have a foundation that is prepared to withstand the loads of the coming decades.

Japan Debut: ABI Delivers TM 20

With the delivery of an ABI MOBILRAM TM 20, an ABI machine is now in operation on the Japanese market for the first time. The specially configured carrier combines a transport concept tailored to national transport requirements with versatile equipment for demanding special civil engineering tasks.



Transport logistics were at the heart of the development. Since Japan has specific regulations governing the transport of heavy construction machinery, the target transport weight is less than 40 t. To meet these requirements, the TM 20 features a new undercarriage with removable tracks.

Without the tracks and with transport support frames, the machine weighs approximately 39000 kg, thus remaining below this critical limit.

The transport height was also systematically designed to meet local conditions. With a transport height of just 3100 mm, including the transport support frame, there is no need for a conventional low-bed trailer.

During loading, hydraulic cylinders lift the TM 20 by 1040 mm, after which the trailer can easily be driven under the raised machine. The transport support frames play a key role in this process: They spread the machine's weight evenly across the loading area, thereby ensuring balanced load distribution.

The TM 20 is primarily intended for use in shoring projects. For this purpose, it was delivered equipped with both an MRZV 22 VV vibrator and an MDBA 4500-2 auger drive.



Photos: ABI MOBILRAM TM 20 with demounted tracks in Niedernberg and presentation of mounting the tracks in Japan

The base is the efficient, compact, and weight-optimized SR 30 carrier with an engine output of 340 kW. This combination delivers the performance required for the application while offering optimized transport characteristics for road transport in Japan.

RD Pile Wall: Securely Anchored in Rock

A cable landing duct is being constructed as part of a construction project in Nacka, near Stockholm. The special civil engineering work was carried out by the Swedish company BESAB.

To construct an RD pile wall, BESAB used the SPD T13-S25 drilling rig equipped with an RH24X auger drive and a down-the-hole hammer. A total of approximately 100 piles were planned for the duct.

The 12 m long steel pipe piles have a diameter of 323 mm. However, the machine combination used can achieve drilling diameters of up to 506 mm. The T13-S25 does not have a cab; the crawler drilling rig is operated entirely via remote control. The operator can control the machine from a safe location and monitor the progress of the drilling work.

The challenging soil conditions were the decisive factor in choosing this method: the subsoil consists of alternating layers of clay, gravel, boulders, and stones. In addition, the pile wall had to be drilled down to bedrock and anchored there. After installation, the piles were backfilled with concrete.

An RD pile wall consists of steel pipe piles that interlock via connectors, thereby forming a continuous retaining wall. The RD pile wall is installed using the percussion drilling method with a down-the-hole hammer. This method is suitable for structures that must withstand horizontal and vertical loads and is used, among other things, for excavation pits, foundations, bridges, harbour and quay walls, as well as in road and railway construction.

RD pile walls can be driven through stones and boulders all the way into the bedrock. This makes them suitable for areas where conventional retaining structures reach their limits. Compared to conventional sheet pile walls, the system offers higher bending stiffness and resistance. As a result, the pile wall can be used as an integral part of the permanent structure, eliminating the need for temporary retaining walls.

Photos: SPD drilling rig T13-S25 while DTH drilling near Stockholm (below and right)





Project: Entrance for an underwater duct in Nacka, Sweden

Contractor: BESAB, Schweden

Machinery:
SPD T13-S25 with auger drive RH24X

Procedure:
DTH drilling

Geology:
Clay, gravel, boulders, and stone

Rhine Bridge: Foundation for a New Lifeline

The DELMAG RH 50 is ABI's largest drill rig to date - designed for demanding tasks in special civil engineering and for projects that require maximum performance.

With a maximum torque of 507 kNm, a clear diameter in front of the rope pulleys of up to 2800 mm thanks to an adjustable drilling axis, and drilling depths exceeding 60 m, it sets new standards in its performance class. The optimized undercarriage geometry enables high usable loads while maintaining low ground pressure and ensures excellent stability during drilling operations.

Depending on the attachment, the RH 50 offers high flexibility and is designed for Kelly, SOB, full displacement, and VDW drilling. In the full displacement method, drilling depths of more than 40 m are possible with the appropriate configuration. In the long leader mast version, the RH 50 offers a stroke of 24,5 m in the VDW method. A spoil management system is also available to ensure an efficient workflow.

The DELMAG RH 50 also excels during transport and on the job site with well-thought-out solutions and comparatively compact transport dimensions. The rear folding leader mast allows for quick setup; even after transport with dismantled leader mast, the RH 50 can be rapidly reassembled.

By selectively removing individual components, the transport weight can be reduced to less than 60 t. The leader mast can be dismantled via the separable two-piece boom extension, and removable crawler track units reduce the weight still further for transport.

The DELMAG RH 50 is powerful, offers impressive versatility, and delivers maximum efficiency for challenging projects in special civil engineering.



Photo: DELMAG drill rigs RH 50 and RH 38 on job site in Leverkusen while Kelly drilling

Big, bigger, RH 50

During the construction of the new Leverkusen Rhine Bridge, HOCHTIEF Infrastructure used, among other things, two DELMAG drill rigs.

The Leverkusen Rhine Bridge carries the A1 motorway across the Rhine between Köln-Merkenich and Leverkusen-Wiesdorf. The existing structure, built in the 1960s, was originally designed to handle approximately 40000 vehicles per day; with the sharp increase in traffic volume, it had reached its capacity. The replacement bridge is therefore part of an approximately 4,5 km long expansion between Köln-Niehl and the Leverkusen-West motorway interchange.

The first section of the bridge was opened to traffic on February 4, 2024, and can once again be used by heavy-duty vehicles without the previously applicable restrictions. Subsequently, demolition of the old Rhine bridge began to make room for the second bridge section. This construction method maintains traffic flow

Project:
Rhine Bridge Leverkusen

Contractor: HOCHTIEF Infrastructure GmbH

Machinery:
DELMAG drill rig RH 50
DELMAG drill rig RH 38

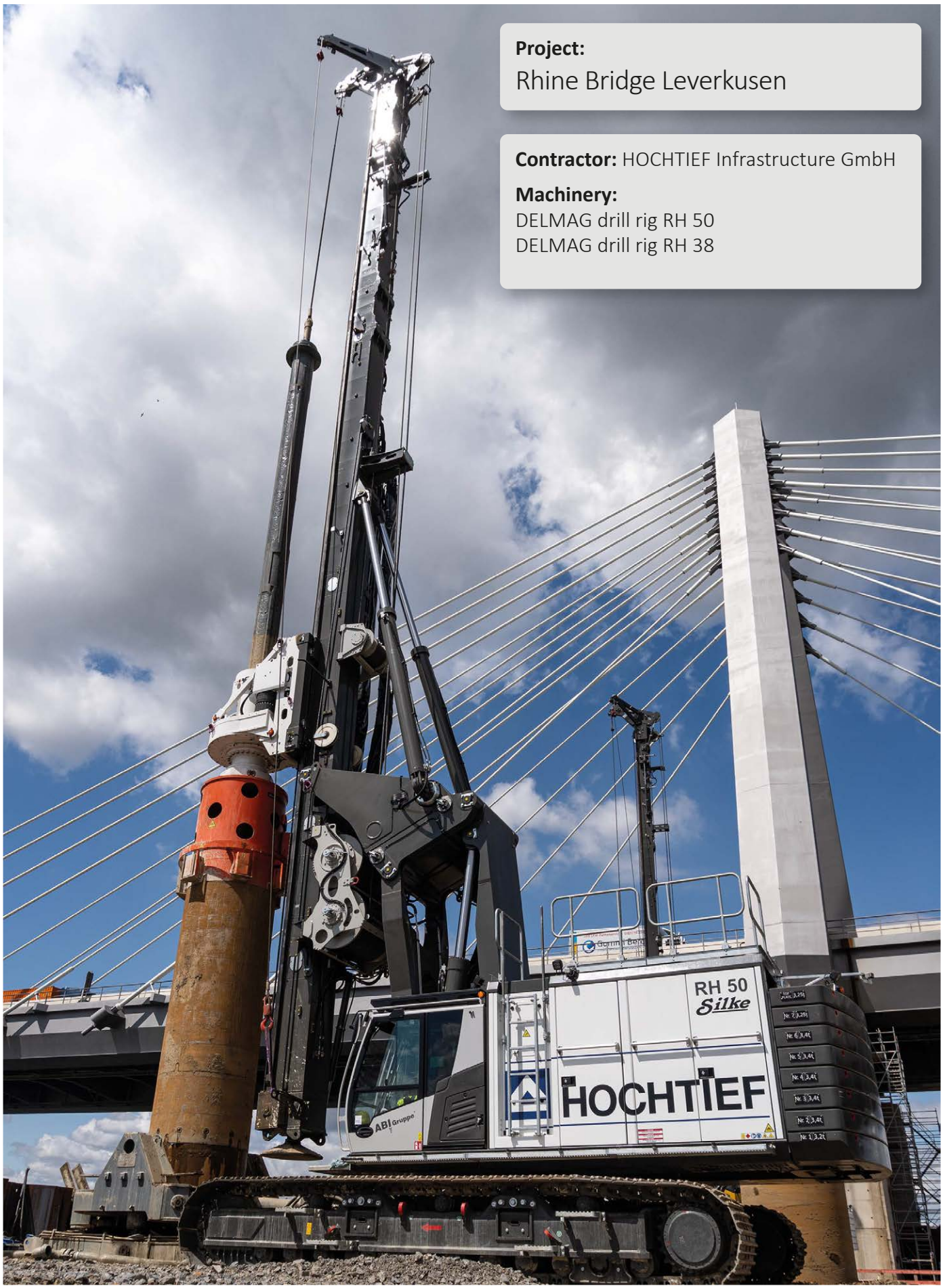


Photo: DELMAG drill rig RH 50 with casing oscillator on job site in Leverkusen while Kelly drilling

throughout the multi-year project- a key requirement on one of Germany's busiest motorway connections.

The foundation work focused on large-diameter drilled piles with a diameter of 1500 mm. They extend up to 40 m deep into the ground and transfer the high loads of the bridge structure to load-bearing soil layers. The piles were constructed using the Kelly drilling method with the DELMAG RH 50 and RH 38 drill rigs.

The drilling method was adapted section by section to the respective soil conditions. In firmer areas, the approximately 40 m long piles could initially be drilled to a depth of about 30 m without an additional casing oscillator. A casing oscillator was used only for the final ten meters.

Foundation work in the immediate vicinity of a river places high demands on construction site logistics and process reliability. Great drilling depths, varying soil layers, and limited work areas require high-performance machinery. At the same time, material flows, the sequence of concrete placement, and equipment changes must be organized so that the piles can be constructed without unnecessary interruptions.

Once both sections of the structure are operational, the Rhine crossing is expected to provide permanently increased capacity, greater traffic safety, and a reliable connection for national and international long-distance traffic. The work demonstrated how high-performance drilling technology and a method adapted to the soil conditions worked in harmony on one of North Rhine-Westphalia's most important infrastructure projects.

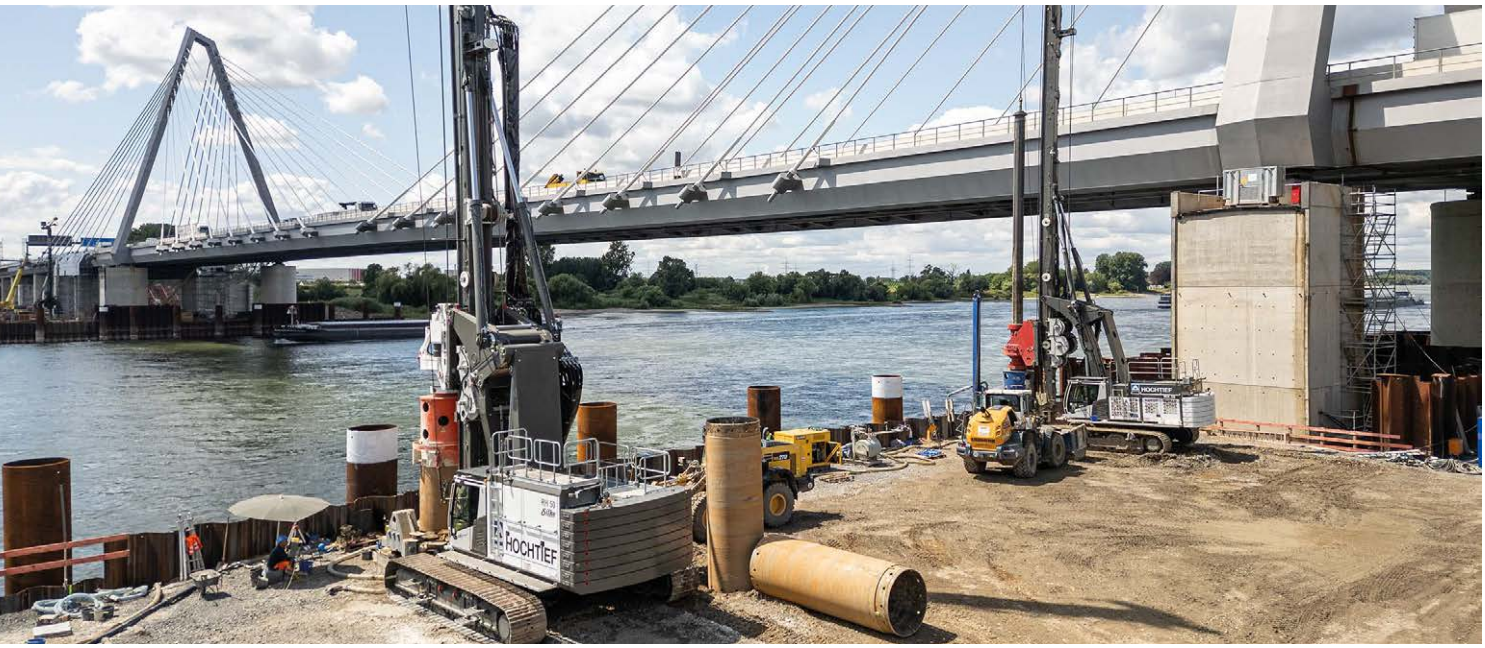


Photo: DELMAG drill rigs RH 50 and RH 38 on job site in Leverkusen while Kelly drilling

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