

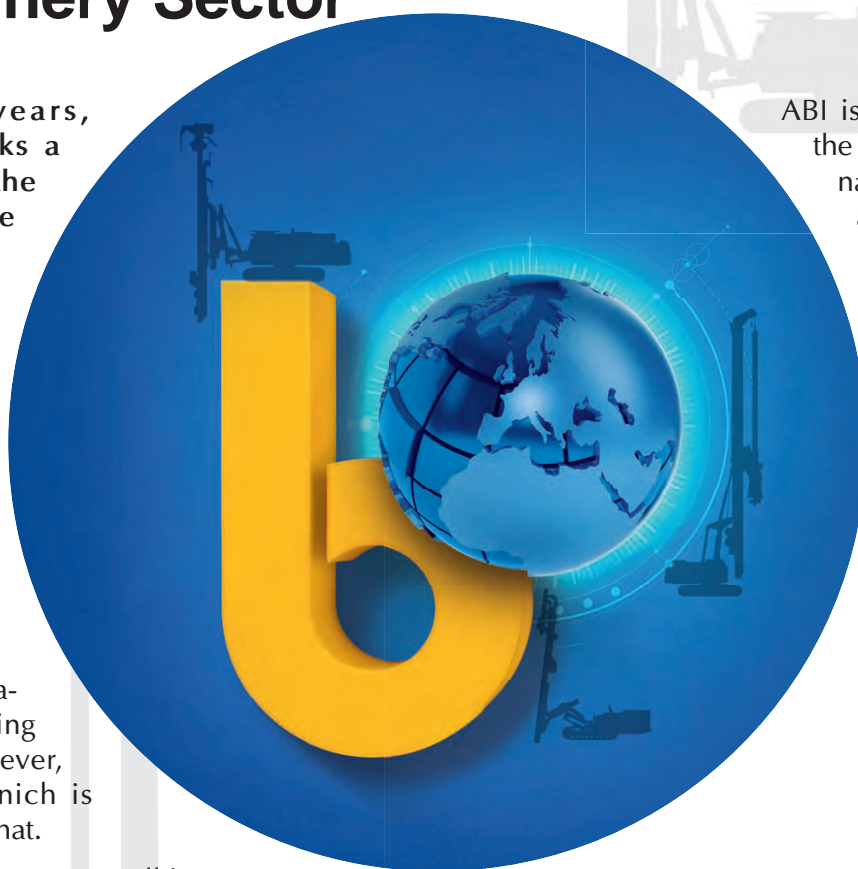
The Greatest Show in the Construction Machinery Sector

Every three years, the bauma marks a fixed point in the calendar of the construction machinery sector.

Machines given a high polish, masses of people and normally good weather would be the simple description of the world's largest trade show for construction machinery and mining technology. However, the show in Munich is about more than that.

Innovations in many areas will be presented to a broad audience, experiences exchanged, new contacts made and the situation in the market sounded out. The manufacturers present themselves with elaborate installations and shows.

Presenting new products and developments at the bauma has a long tradition for ABI. Since 1980, ABI has taken part and presents its products to the professional audiences. So in 2019, for the companies 45th anniversary ABI proudly presents new products including the ABI MOBILRAM TM 13 as well as the DELMAG drill rig RH 36/400.



ABI is also pleased to welcome the Swedish company Scandinavian Pile Driving SPD AB as co-exhibitor at its stand. SPD AB will be presenting three machines, among others their first INTEROC anchor drill rig AN 150 „Made in Sweden“.

ABI and SPD AB are looking forward to an interesting time at the bauma and welcome you at their stand FN 622/1. ■

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First Appearance of the ABI MOBILRAM TM 13

In Munich, ABI will present the prototype of the ABI MOBILRAM TM 13 for the first time.

The compact telescopic leader mast is part of the „mast in mast“ series that is patented in the EU and the USA.

The machine with dimensions adapted for easy transportation, i.e. a transport length of 9000 mm, height of 3100 mm and a transport width of 2500 mm, is mounted on the carrier SR 20 and has an engine output of 209 kW. The new paneling made of GRP (glass-fiber reinforced plastics) helps reduce noise emissions.

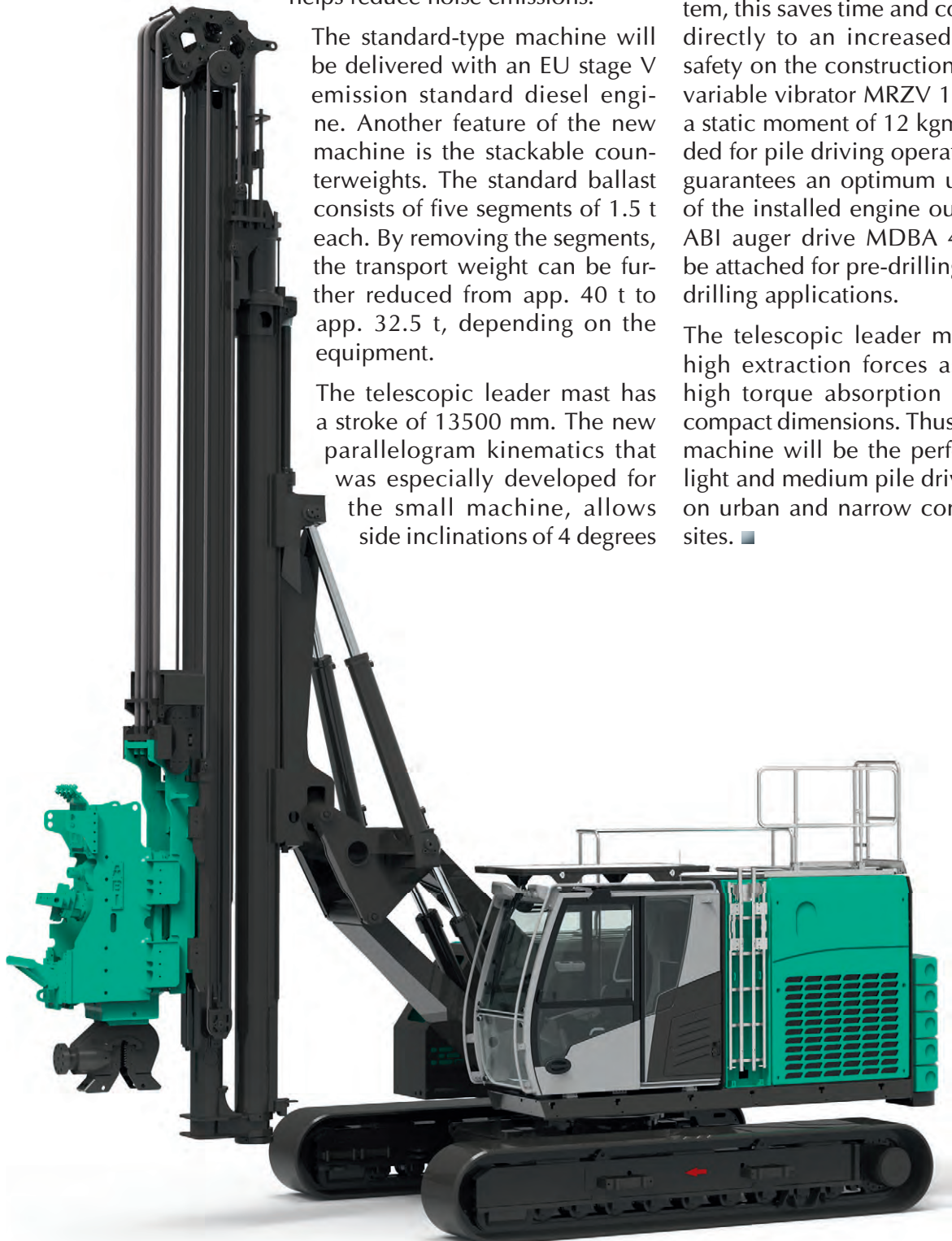
The standard-type machine will be delivered with an EU stage V emission standard diesel engine. Another feature of the new machine is the stackable counterweights. The standard ballast consists of five segments of 1.5 t each. By removing the segments, the transport weight can be further reduced from app. 40 t to app. 32.5 t, depending on the equipment.

The telescopic leader mast has a stroke of 13500 mm. The new parallelogram kinematics that was especially developed for the small machine, allows side inclinations of 4 degrees

as well as a continuous slewing range of 100 degrees to the left and 90 degrees to the right. Thus, the telescopic leader mast can be oriented precisely during pile driving or drilling operations.

The attachments are mounted and removed using the ABI Docking-System, this saves time and contributes directly to an increased working safety on the construction site. The variable vibrator MRZV 12VV with a static moment of 12 kgm is intended for pile driving operations, this guarantees an optimum utilization of the installed engine output. The ABI auger drive MDBA 4500 can be attached for pre-drilling or other drilling applications.

The telescopic leader mast offers high extraction forces as well as high torque absorption and very compact dimensions. Thus, this new machine will be the perfect fit for light and medium pile driving tasks on urban and narrow construction sites. ■



DEL MAG Drill Rig RH 36/400

Big machine for big tasks – the new DELMAG drill rig RH 36/400. This powerful machine is used to drill boreholes with large diameters. The torsionally stiff design perfectly absorbs forces and offers a high degree of stability.

The new machine is the biggest model of the DELMAG drill rigs and features a leader mast that can be laid down to the rear. Since 2008, ABI has built its own carriers and the carrier T110D-A with 470 kW for this machine is also constructed at our premises. Combined with the kinematics and the leader mast, the carrier is perfectly suited for large drilling tasks. High engine output as well as the combination of well-matched components result in a highly efficient and precise machine.

In the standard configuration, the leader mast has a stroke of 19950 mm that can be extended by another app. 5000 mm for applications such as CFA or VDW drilling.

The rotary head appropriate for Kelly bars with an outside diameter of 495 mm has a torque of 400 kNm and is thus perfectly suited for large and deep boreholes. Due to the new drive system, the rotary head also requires little maintenance and is very quiet. The easily accessible drive keys can be exchanged from the outside.

The kinematics can be delivered in two versions. In addition to the standard kinematics, ABI also offers a version with a detachable boom extension. Thus, the leader mast can be removed for transport with manageable efforts.

Although the machine with an operating weight of app. 123 t (with rotary head, Kelly bar K495/3-33, but without casing connector and starter) is not a light weight, e.g. the detachable boom extension gives the possibility to distribute the weight on several transport loads. Also for the new T110D-A, ABI relies on stackable counterweights. Five segments in total with a total weight of 18 t for standard ballast can be removed for transportation. In addition to the removable counterweights, the transport weight can

be reduced further by removing the crawler track units. To reduce the transport length, the leader mast has a folding mechanism so that the upper leader part can be folded in for transport to achieve a transport length of less than 22000 mm.

The cabin is the cockpit for the machine operator. An ergonomic arrangement of the control elements as well as an intuitive control concept both help to manage the daily work routine. The new MaxCab cabin gives the operator a good insight into the working process. For the control system, one relies on the proven 10" display complemented by a 7" auxiliary display. ■



Focus on the Driver's Comfort

No matter whether in the workshop, office or machine, an ergonomic arrangement of the workplace is very important for the worker and the movements he has to carry out in his daily work. With the introduction of the new carrier series in 2019, ABI sets the priority on a modern operating concept in the new cabin. The requirements of the operator were at the center of this development with particular attention on ergonomics and intuitive control.

Function controller and auxiliary display

The 10" display is complemented by a 7" auxiliary display and a function controller. The auxiliary display is flexibly installed in front of the right joystick and allows for fast intervention in the current working process. The selection of buttons and set values is dynamic and always related to the selected working process. In combination with the function controller on the right-hand side behind the joystick, it allows for a fast and comfortable control of the process and the most important parameters. Thus, the main display can be installed more flexibly and the operator has an optimum insight into the working process.

Adjustable functional behavior and main display

The response of the control levers as well as the arrangement of the measured values in the operating mask are partially free settable. Thus, the view of the operator is directed on the important indicators relevant for the working process.

Vibrational feedback of joystick

A vibrational feedback in the joystick transmits important messages to the operator. For example, when a winch moves into the stop the joysticks will vibrate briefly to inform the operator that the limit has been reached.

Start-stop button

With the start-stop button the diesel engine can be stopped on longer waiting times without the control system being switched off. On restart the system is immediately at the same settings as before. This reduces noise emissions and saves fuel.

Battery management

The exhaust treatment acc. to EU Stage V often does not allow interruption of the battery disconnecter directly after stopping the diesel engine. The battery management takes on this function automatically and provides

for a high availability of the starter battery. When leaving the machine, it is enough to turn the ignition key to neutral and the operator can leave the machine. The battery management automatically disconnects the battery as soon as the diesel engine control allows it.

„Loading“ remote control

Loading the machine on confined construction sites requires high skills from the operator and the spotter. To facilitate the loading operation a „Loading“ radio control is integrated as standard starting with the F series. It is easier to judge the loading operation and to control critical spots from the outside.

Side lighting

The side lighting of the machine improves the illumination of the side area and the all-round visibility. In combination with the activated battery management, it facilitates the access to the machine when it is dark.

Comfort seat

The air-conditioned cabin is equipped with air suspended operator's seat with lumbar support as well as seat heating and headrest as standard. ■



Scandinavian Pile Driving AB at the bauma

At the bauma 2019, SPD will present its products together with ABI.

They present the first INTEROC anchor drill rig AN 150 made in Sweden as well as a telescopic mast DT145 and an add-on drill mast MD33-F that will complement the ABI rental machinery park after the bauma.

The telescopic mast DT145 is a best-seller for SPD. The machine shown at the bauma is mounted on a hydraulic excavator Volvo EC300ENL and has an operating weight of 42 t. After the bauma, the DT145 will be shipped to the company PRECO-MSE in Canada and will be used primarily for DTH drilling. For that task, it is equipped with the

powerful rotary drive RH 4300. The stroke is 13000 mm.

The attachments can be exchanged by means of a quick-change system so that the rotary head can quickly be exchanged with a hydraulic hammer and the machine can be used for pile driving. The DT145 is operated with a radio remote control.

The AN 150 is a classic anchor drill rig. Thanks to the robust kinematics, the mast can be moved fast and easily to different drilling positions. The AN 150 has a stroke of 5700 mm, the available effective length depends on the installed attachment. The machine is equipped with a box magazine for rods with a diameter of 101 mm, 114 mm and 133 mm. The clamping and

breaking device with a breaking torque of 5000 daNm allows for a convenient installation and removal of the drilling rods. All functions like driving, positioning of the carriage and drilling are operated with the SPD radio remote control. The machine is driven by a Cummins diesel engine with 209 kW. This supplies sufficient power for the daily anchor drilling work. The machine at the bauma is already painted in the colors of the company D&K Spezial Tiefbau GmbH & Co. KG from Bad Grönenbach.

Information on the add-on drill mast MD33-F can be found in the article: Two SPD Machines for the ABI Rental Park. ■



Photo: Telescopic drill mast DT145 at the SPD premises in Sala, Sweden

TM 17 – One for All Purposes

The company Bernegger enlarged its machine pool with an ABI MOBILRAM TM 17. The new machine is utilized very well and has proved its strengths on numerous construction sites.

The Bernegger group has its headquarters in Molln in Upper Austria and is active in the fields of construction, raw materials and environment across the Austrian borders. In

addition to civil and special civil engineering, Bernegger concentrates on further main areas in its construction industry division, like road and special road construction, lining of slopes, flood control and construction of power plants. Before the TM 17 was added, their machine pool already included some DELMAG machines, e.g. two small drill rigs RH 06, two RH 18 as well as one RH 24/270.



Photos: TM 17 with VDW 10050 at the job site Vivenotgasse, Vienna, finished building pit with secant pile wall and soldier beam wall (above)

Construction site Vivenotgasse in Vienna

The TM 17 took part in the shoring of a building pit and comprehensive foundation work for the new construction of a multistorey house in the heart of Vienna.

The shoring of the building pit on the road side was made of a soldier pile wall consisting of I-beams HEB 300 with a length of up to 9 m and an infill with steel sheet piles. Due to the old existing buildings and the nearby subway, the entire area was predrilled with the auger drive MDBA 4500 to reduce potential oscillations to an absolute minimum. The construction work was monitored with measuring technology.

The sides toward the existing buildings was secured with VDW piles. A part of them were carried out as secant pile wall, another part as tangent piles and a third part as contiguous pile wall with shotcrete infill. The drilling depths

were up to 13 m and the piles were reinforced with double-T-beams. In addition, temporary as well as permanent foundation piles were installed with the VDW 10050.

Construction site Hügeltgasse in Bad Vöslau

The TM 17 with auger drive MDBA 4500 and variable vibrator MRZV 20VV was used on this construction site in the historical residential area of Bad Vöslau. Pre-drilling for the soldier pile wall was carried out in advance to be able to install the 9.5 m long HEB profiles with a sheet pile infill more gently afterwards. The vibrations were monitored with measuring technology during the construction.

The depth of the building pit was 6.5 m max. The soldier pile wall was reinforced with walings, respectively secured with supports on auxiliary foundations and a welded diagonal corner reinforcement.



Photo: TM 17 with vibrator MRZV 20VV in the town of Bad Vöslau (left)



Photo: TM 17 with Twinmix auger drive MDBA 2-4000 while soil mixing in Elidagasse, Vienna

Construction site Elidagasse in Vienna

A new residential estate will be erected in the Elidagasse in Vienna. Due to the existing adjacent buildings as well as the ground water situation, tight shoring of the building pit on the property had to be achieved. The sandy gravel that reached down to the aquiclude (a low permeable ground layer), was ideally suited for a cost-effective enclosure through a secant mixed pile wall. For this work, the TM 17 was equipped with a Twinmix auger drive TMBA 2-4000 from the ABI rental park. Using the TMBA, soil mixed segments consisting of two secant piles are installed in one mixing procedure.

In the areas where the adjacent buildings directly reached to the property limits, the columns were made with a spacing of app. 600 mm to the existing buildings and each second column was reinforced with a HEB 200. In other areas, the secant wall was milled

of to a thickness of app. 350 mm to make room for the exterior wall of the cellar.

To ensure the tightness of the shoring, the columns were sunk down to a depth of 7.5 m and thus app. 1.0 m into the aquiclude. In total, about 1700 running meters of soil mixed segments were made with the TM 17. ■



Photo: TM 17 with auger drive MDBA while pre-drilling in the town of Bad Vöslau

Two SPD Machines for the ABI Rental Park

After the bauma, two new SPD machines will be added to the ABI rental park: one MD33-F and one DM55.2.

Both drill masts are configured for anchor drilling and are ideal members on construction sites for the lining of slopes, placing of self-drilling anchors, soil nailings, etc. The machines are mainly used on construction sites with difficult to access drilling spots. Thanks to the extremely flexible kinematics and the 360 degrees swivel joint, overhead, underground and other drilling spots can be reached with ease.

With an operating weight of only 9.4 t, the MD33-F is the smaller of the two machines. It is a drill mast installed on a hydraulic excavator Volvo ECR88D. The mast has a stroke of 3300 mm and is equipped with a top hammer HD1001. The machine is operated with a radio remote control that allows control of the add-on drill mast and the hydraulic excavator. Different measured values like e.g. pressures, speeds, temperatures and service intervals are shown on the display of the remote control. The danger area around the attachment is monitored by a sensor system. The installed single clamping device allows easy handling of the drilling rods. In particular the MD33-F is suitable for placing hollow and self-drilling anchors in particular.

Photo: Anchor drill machine MD33-F (right and below)



The bigger machine DM55.2 has a stroke of 4000 mm. It is attached to a hydraulic excavator Volvo EC250ENL by means of a quick-change system Oilquick. Thanks to a 360 degrees swivel joint and a 180 degrees mast slewing mechanism, the kinematics is extremely flexible so that all possible drilling spots within reach can be achieved. The machine is equipped with the powerful top hammer HD4010. A clamping and breaking device as well as an auxiliary winch on the mast head are mounted for handling the drilling rods.

As with the smaller machine, the DM55.2 is also operated by means of a radio control that activates the mast functions as well as the hydraulic excavator. All important values are shown on the display of the remote control. The operational machine has a weight of app. 32 t.

Ask the ABI rental park department for a rental offer. We would be pleased to advise you. ■



Photo: Anchor drilling with SPD machine DM55.2



DELMAG Drill Rigs at River Thames Bank

ABI Equipment Ltd received the contract from Dawson WAW for foundations work on the jobsite at their Woolwich Royal Arsenal site in London with three DELMAG drilling rigs throughout 2018.

Phase 9 is one part of the urban regeneration development at the Woolwich Royal Arsenal site on the South Bank of the river Thames on the site of the former coal fired power station. The company Berkeley Homes are developing this used land and building prestigious apartments and commercial areas.

One of the first activities was to secure the complete construction area with sheet piles. The sheet piles remained in the ground and took over as an additional support function of the foundation. Although the former power station had long been demolished, the underground was scattered with steel and concrete elements, and the whole area additionally covered from a reinforced concrete slab up to 10 meters thick. To excavate the complete area and to remove the original development proved too expensive and time consuming.

Core drilling along the sheet pile drive line through the reinforced concrete slab in to the original soil was the solution to remove any possible obstacles in advance. Dawson WAM decided to use conventional segmental casing with highly wear resistant drilling tools with a diameter from 880 mm in variable casing lengths. They drilled a traditional grid pattern an overcut bored pile wall (secant pile wall) to form



Photo: DELMAG drill rig RH 28 in London

a continuous slot along the pile line with a correct depth and width that accommodates the sheet pile profile. The observance of the exact drilling position and to a certain degree also the verticality was guaranteed through a drill frame, that Dawson WAM constructed for this purpose. Specially prepared 'cutting shoes' with a solid ring of carbide wear blocks ensured optimum coring efficiency whilst minimising tool wear and vibration.

The drilling depth stopped on average at approximately 11 m, directly under the concrete slab, where the underlying dense ground was well suited for sheet pile installation. Due to this preparation 14 meters long sheet piles profile EZ18-700 could be installed without any further problem. It was by far the most productive approach, which reduced the proportion of contaminated material and spoil to a minimum.

In addition to the preliminary construction and the ground improvement work the drilling rig RH 28 was used throughout the complete construction site for the cutting and clearing for the main load bearing

piles. The piles with a diameter of 900 mm with a depth of 32 meters were with a Dawson WAM CFA machine installed. For this the RH's core drilled with a diameter of 1000 mm with a comparable drill depth similar to the work for the sheet pile drive line.

Also on this construction site the DELMAG RH 28 proved to be a good choice for foundation work in difficult ground conditions. Like all DELMAG drilling rigs it delivers the required strength and stability and covers multiple drilling applications.

Also used on this construction site were other machines from the ABI group, including one of the three owned Dawson WAM's TM 22's with the MRZV 30VV for temporary shoring with sheet piles and for in situ concrete vibro piles. The smaller TM 13/16 vibrated the cages in the concrete piles and conducted smaller drilling works.

ABI Equipment Ltd is proud to be selected as the central equipment supplier for such a prestigious project.

Gary Johnstone site manager for Dawson WAM commented: „*The Delmag RH28 drilling rigs did the vital work that then facilitated the rest of the construction. The installation of the piles on this site would not have been possible without the preparation work carried out using these rigs – they did the work in advance of the other machines and in most cases did not install the piles themselves.*

These are very tough rigs, with efficient EU Stage IV engines, high torque and high crowd/extraction forces that are very important when boring through difficult ground.

The RH28 rigs really proved their worth in removing the obstructions formed by the previous building structures and performed reliably from March right through to the end of their hire at Christmas. The support we received from ABI Equipment from project inception to project completion was first class.” ■

Photo: DELMAG drill rigs RH 28 in London on the Woolwich Royal Arsenal job site



TM 20 with Down-the-hole Hammer

The company Hercules Grundläggning AB used its machine that was especially equipped with a DTH hammer for the operation, in wintery conditions in the north of Stockholm.

The ABI MOBILRAM TM 20 was especially equipped with a DTH hammer for the operation. SPD provided the know-how and the components for the DTH drilling. The machine was delivered already in May 2017, before Scandinavian Pile Driving SPD AB became a part of the ABI Group.

The auger drive MDBA 3200 that is attached to the leader mast via the

Docking-System, has a folding function and can be folded up to the front 90 degrees into the horizontal. This facilitates the installation of individual pipe sections. In addition, the auger drive is equipped with a diverter that diverts the loosened particles.

For the DTH hammer operation, a clamping and breaking device (CBD) is attached to the lower leader mast extension. With the CBD, pipe sections of a diameter up to 406 mm can be clamped. By means of a hydraulic cylinder on the upper unit of the CBD, the clamping point can easily be chosen and adjusted. In addition, the unit can be used as a pipe extraction table for the extraction of casings.

An air hose with a large cross-section was routed over the leader mast up to the rear of the machine to supply the DTH hammer with a mixture of air and water. The mixing components are located at the rear of the machine.

The installed hardware was completed with additional control functions, like a pressure torque control for the auger drive, comfortable

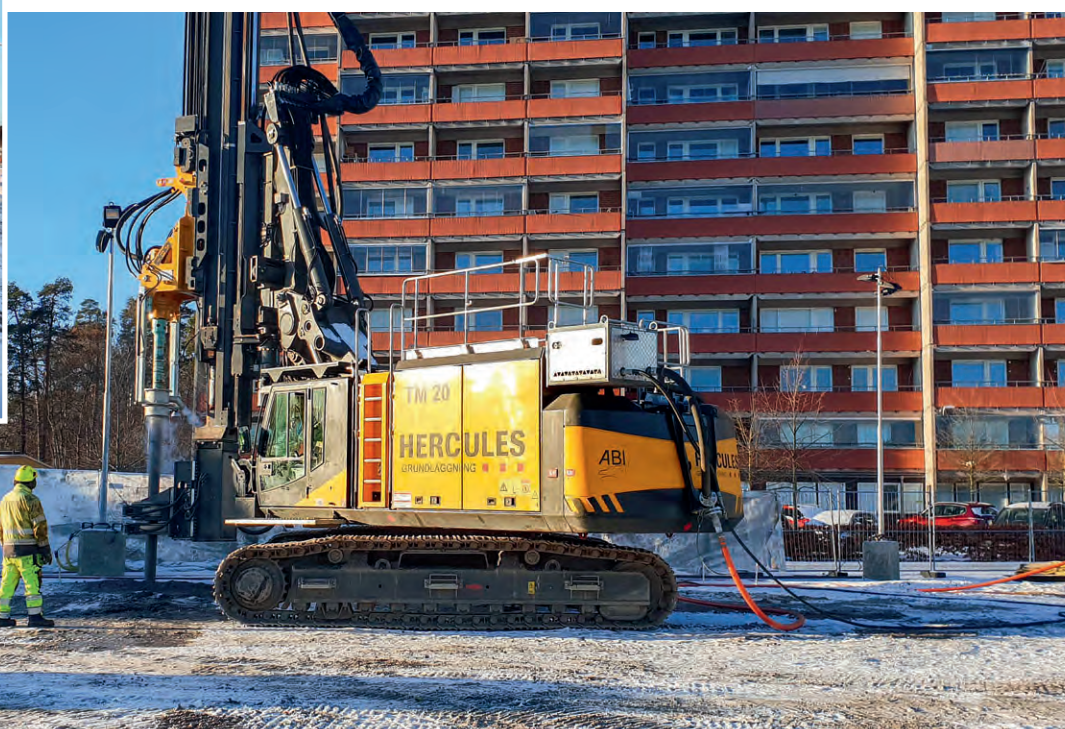
speed control and force control for the prestressing force of the leader mast.

In addition to the special equipment, the classic tool, a vibrator MRZV 30VV, was also delivered.

The TM 20 with DTH equipment from Hercules was used on a construction site of the Danderyd community in the north of Stockholm. Micro-piles were made as foundation work for a construction project consisting of several residential units and an underground parking lot. The Inverness Högden project is divided into four phases and includes the construction of app. 400 residential units. The work carried out by Hercules belonged to the 2nd phase.

The depth of 6 m was no big challenge for the TM 20. The drilling work progressed rapidly despite the wintery conditions.

Besides the TM 20, a DT145, a best-seller from SPD, also worked on the construction site. ■



Photos: TM 20 with auger drive MDBA 3200 while DTH drilling (left and below)

RH 12/140 in Hamburg

The company Göllnitz Umwelttechnik GmbH enlarges its vehicle pool by another special civil engineering machine, a DELMAG drill rig RH 12/140.

The company from Mönchhagen often completes narrow urban construction sites in the north of Germany. The three managing directors Alf, Olaf and Tom Göllnitz agreed that the new acquisition must have features like low transport weight and dimensions as well as short set-up times.

The company is quite familiar with ABI and DELMAG machines, at the time of the decision to purchase, their machinery park counted seven machines. The choice narrowed down to the new RH 12/140 which was introduced to the market at the turn of the year 2017/2018.

This machine was convincing with its transport dimensions, in particular a transport width of 2500 mm as well as a transport weight of 31.8 t without equipment and counterweight. However, the transport can be done including the Kelly bar and the rotary head, then the RH 12/140 reaches a weight of 44.5 t. Transport including the equipment considerably reduces the set-up time and also the space needed for setting-up.

The rotary head BT 140 - Silent with a torque of over 140 kNm perfectly transforms the engine output of 201 kW supplied by the carrier SR 20. The noise emissions were noticeably reduced through new components and other developments.



Photos: RH 12/140 and TM 11/14 P at the job site Charlie-Mills-Quartier (right),
RH 12/140 at the job site Wandsbeker Zollstraße (below)



The RH 12/140 of the company Göllnitz has a well-filled agenda. The operator answering to the nickname of Peter Smith quickly got used to the new control concept and is enthusiastic about the machine.

Construction site Wandsbeker Zollstrasse

For the construction of a residential building with 20 rental apartments, the building owner FEWA Grundstücksgesellschaft GmbH & Co. KG awarded Göllnitz the contract to build a soldier pile wall with a length of 85 m. The RH 12/140 drilled a total of 23 boreholes with a depth from 7.5 to 10.0 m for the soldier pile wall. In some places the machine had to drill through old foundations and wooden beams found in the ground. Afterwards, the building pit could be excavated

and anchored in places. The depth of the building pit varied between 2.5 and 4.8 m.

Construction site Charlie-Mills-Quartier in Wandsbek

The name of the new building was inspired by the close vicinity to the Farmsen-Berne trotting course and an icon of the trotting sport, Charlie Mills, a progressive and farsighted unconventional thinker. The new complex of buildings with apartments and commercial spaces, underground parking lot as well as a separate parking space unit is supposed to reflect these characteristics with a modern architecture and an exceptional facade, this is the concept of the building owner Becken Projektgesellschaft Charlie-Mills-Quartier mbH & Co. KG.

On behalf of the Richard Ditting GmbH & Co. KG, Göllnitz builds a reinforced building pit on the construction site. The soldier pile walls with a length of 340 and 190 m will be built in two construction stages. The cased boreholes for the installation of the pile wall with concrete footings have a depth between 7.0 and 9.75 m. The depth of the building pit is 6.25 m. A total of 200 beams have to be placed. In addition to the RH 12/140, an ABI MOBILRAM TM 11/14 P with CFA equipment also works on the construction site.

The completion of the entire complex is planned for 2021. ■

Brandel-Bau staying with ABI

In autumn last year the company Brandel-Bau GmbH from Tauberbischofsheim in Baden-Württemberg, a longstanding customer of ABI, organized a company trip for its employees.

One of the stopovers was the visit to ABI in Niedernberg. During a tour of the factory, the employees of Brandel-

Bau learned quite a lot about the company's history and the production of special civil engineering machinery. The machine demonstrations completed the program. The visitors were impressed by the machines and thanked the Heichel family for the interesting insight into machine construction. ■



Photo: Employees of the company Brandel-Bau ahead of ABI MOBILRAM-System at the premises Am Knüchel in Niedernberg (Photo: Brandel-Bau)

TM 22 behind the Dike

The company Joachim Tiesler Hoch- und Tiefbau GmbH & Co. KG from Elsfleth was awarded the contract for sheet piling works for four construction stages to upgrade the flood-control structures at a side arm of the river Elbe in Hamburg.

Due to the vicinity of the river Weser, one of the main fields of activity of Tiesler since the foundation of the company is special civil engineering work like water engineering, foundations and waterfront structures.

The client, Gesellschafter der Poldergemeinschaft Neuhoﬀ c/o H&R Ölwerke Schindler GmbH, has secured by contract a strict schedule for the execution of the work. A polder is a diked, lower-lying area. Behind the dike to be renovated, a sensitive industrial facility, a refinery, is located. Therefore, sections where no vibrating will be allowed were already specified in the tender. In addition, the structural flood control must be achieved before August 31 of the respective year at the latest. The sheet piling work for the first construction stage was completed between 4/16/2018 to 8/31/2018 and the stages 3 + 4 will be realized in the same period in 2019. The second construction stage can be carried out at the moment as the work can now be executed protected by the existing



Photos: TM 22 with Hydro-Press-System (above), finished, coated steel sheet pile wall with steel sleeper (below)

flood-control wall outside the period where work is suspended due to high risk of flooding.

Due to the flood-exposed location and the sensitive industrial facilities behind the protective installation, the reinforced concrete wall existing in the first, third and fourth construction stages could be demolished starting on April 16. Then, the areas where the anchors for the subsequent back-anchoring of the sheet pile wall were to be installed, was probed for explosive

ordnance. As the sheet piling work progressed, the predrilled anchors were passed through the wall and connected to the sheet pile wall.

During the first construction stage in 2018, Tiesler's TM 22 installed a total of 1900 t of sheet pile sections in the ground which corresponds to a wall length of 750 m. All profiles were vibrated down with the vibrator MRZV 30VV. Different profiles were used, like AZ18-700, AZ24-700 and AZ36-700. The lengths varied from 14.5 to 18.7 m.



One of the particulars of the first construction stage were several pipe culverts with a diameter of up to 1200 mm. Two of them had to be removed, passed through the sheet pile wall and reinstalled within two days. At two other locations, pipe bridges with a height of 4.0 m complicated the pile driving work.

The sheet pile wall head was covered with a steel sleeper. The sheet pile wall remains visible and the already coated profiles received a final cover coating on site.

The ABI MOBILRAM-System was working reliably so that Tiesler was able to finish the first stage in due time and is on schedule for the second stage.

For the second construction stage, the Hydro-Press-System is used as well. App. 210 t of the 272 t of AZ18-700 profiles with lengths from 8.0 to 13.0 m will be pressed down and the remainder driven with the MRZV 30VV. The length of the second stage is 270 m.

For the third and fourth construction stages in 2019, Tiesler's own TM 22 will be supported by another TM 22 from the ABI rental park. With a length of 850 m, the third stage is the longest one. A total of 2150 t of sheet pile wall will be installed, app. 1975 t of them by a vibrator and the remaining 175 t with the Hydro-Press-System.

The wall for the fourth and last stage is 550 m long. About 20 per-

cent of the profiles will be pressed down and the remaining 1015 t vibrated down with the vibrator. The lengths of the sheet pile sections vary between 8.0 and 20.0 m.

The installation of the sheet pile wall with steel sleeper and cover coating is identical to the first two construction stages. In the years 2018 and 2019, a total of app. 5500 t of sheet pile wall will be driven during the construction stages 1 to 4. Due to the additional machine, Christian Heck, project manager of Tiesler, is confident that all work will be carried out in due time. ■

VDW Drilling for a Residential Estate

For quite some time, the company Helical Drilling, a customer of the ABI sales partner Hammer & Steel Inc. in the USA, is busy with interesting shoring and foundation projects in the New England region.

In Winchester, in the State of Massachusetts, Helical Drilling realized

special civil engineering works with the ABI MOBILRAM-System for the Elmwood Ave project where a residential estate was built.

An ABI MOBILRAM TM 14/17 V with the double auger head system VDW 8360 was used for the construction of a secant pile wall. A total of 122 single piles with a

diameter of 560 mm were installed down to a depth of up to 6.4 m. The piles overlapped by 100 mm. The secondary piles were reinforced with a double-T-beam W10x33. Double-T-beams were chosen as the handling of the beams is easier as compared to reinforcing cages.

After the TM 14/17 V was already removed from the construction site and brought to another one, the plans for the shoring measures were changed. An additional soldier pile wall and some steel sheet piles had to be installed.

Helical Drilling used a TM 13/16 SL with vibrator MRZV 20VV for this additional work. The soldier pile wall was made with double-T-beams with a cross-section of 305 x 305 mm in lengths of 7.6 and 9.15 m. The remaining shoring work was completed with 18 cold-rolled Z-profiles SKZ 20 with a length of 7.60 m. These remained permanently in the ground. ■



Photo: ABI MOBILRAM TM 14/17 V with VDW double auger head system

Waterproof Sheet Pile Wall with TM 17

The company Eiffage Infra-Spezialtiefbau made steel sheet pile boxes for a later drilled pile foundation under confined conditions.

Eiffage offers a vast range of services for special civil engineering, in addition to foundation and shoring work they are also active in the fields of drilling, pile driving and anchoring procedures. Besides the ABI telescopic leader mast TM 17 that they purchased recently this year, ABI will also deliver to Eiffage Infra-Spezialtiefbau the new DELMAG drill rig RH 36/400 that is presented at the bauma.

For the planned extension of the railway line of the Deutsche Bahn between Oberhausen and Wesel in the Ruhr, the existing bridge over the river Emscher, a tributary of the Rhine, will be extended with two single-spans, single-track truss bridges. The construction of the bridges is part of the extension of the line between Emmerich and Oberhausen with a total length of 73 km.

The superstructure of the bridges will be built on two abutments each next to the existing bridges. For the deep foundation of the abutments, vertical large-diameter piles of reinforced concrete with a diameter of 1200 mm are planned. For the drilling work, first each of the four abutments receives a waterproof steel sheet pile case. In addition, temporary constructions with steel sheet piles must be installed to protect the access ramps in the flood area. The used steel sheet piles have a length of up to 14.0 m.

The sheet piling works with the TM 17 have to be carried out under extremely difficult conditions. The working height is restricted by a 220 kV high-voltage power line. The working area is limited by a dike, the railway embankment, a biotope and the Emscher. During the works, attention must be paid also to various gas and supply lines that are in the ground. In addition, difficult subsoil is to be expected. In the ground there is backfill like slag,



crushed stone, stones, and partial residues of brick as well as coal are to be expected that will further complicate the pile driving work. ■



Photos: ABI MOBILRAM TM 17 with vibrator MRZV 30VV, the sheet pile is clamped with the clamp assembly after being placed with a crane (above)

TM 17 while pile driving besides the railway embankment (left)

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