

ABI Gruppe



News

News for customers, employees and suppliers

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2022
October

ABI MOBILRAM TM 26

The ABI MOBILRAM TM 26 significantly expands the available range of telescopic leader masts and offers a usable length of approx. 26 m.

This new machine combines an impressive maximum working height of approximately 26 m underneath the attachment with moderate transport dimensions. Like the proven smaller TM 22, the leader is constructed as a „leader in leader“ construction and offers very high torsional strength. The connection to the carrier is via the new HD-plus kinematics. The rigid leader and kinematics as a combination permit load capacities of up to 20,000 kg.

In terms of efficiency, the SR 45 carrier is state of the art. The carrier fulfils all the EU gas emissions standard stage V requirements. For higher efficiency and thus more available power, attention was paid to an optimized air flow throughout the carrier and the fan controls have been adapted for upon demand requirements.

The new SR 45 is equipped with a stackable counterweights system. The standard ballast contains seven stackable weights with two inserts and contributes to the excellent stability of the machine.

The new T51 undercarriage offers very high stability, is lower and has a wider and longer track base. Several additional options such as detachable track units and lifting cylinders are available.

If necessary, the transport weight can be significantly reduced thanks to the removable track units. The undercarriage is connected to the machine via CAN-BUS and is equipped with motion sensors. Feedback for the driver is given directly on the display in the cabin as soon as the undercarriage is fully extended.

The TM 26 offers proven and reliable ABI technology with perfectly matched modern components. With the achievable and usable length of approx. 26 m, further areas of application and demanding tasks in special foundation engineering open up.



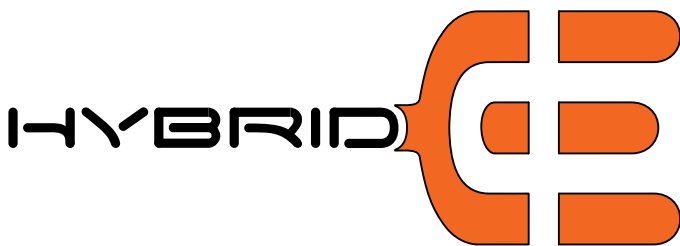
ABI MOBILRAM TM 13 Hybrid

ABI presents the small and compact TM 13 Hybrid.

ABI travels the road towards zero emissions in stages. The first milestone is a hybrid machine. A small and compact model from the telescopic leader range, the TM 13, was selected for the implementation of the hybrid concept.

The machine is equipped with a small 55 kW diesel engine. This drives a generator, which in turn charges the batteries. The batteries can also be charged using an electrical mains connection. The built-in electric motors drive the constant pumps of the hydraulic circuit as required.

One of the greatest advantages of this concept is the independence from an external power supply; the TM 13 Hybrid can work independently. At around 180 kW, the hydraulic power output at the Docking-System is around 16% higher than that of the conventional TM 13 powered by only a diesel engine.



The hybrid concept allows for the use of significantly cheaper batteries than machines using a pure battery concept. In contrast to the significantly larger engines, the smaller built-in diesel engine runs under optimal parameters and is significantly more environmentally friendly due to the lower fuel consumption.

The TM 13 Hybrid can be used with the MRZV 16VV vibrator or with various drill attachments, e.g. double head drilling system VDW 4230 or MDBA auger drives.



The telescopic leader TM 13 as a hybrid variant offers all the advantages of the conventional TM 13, such as a good usable length of 13 m, compact transport dimensions with a width of 2.5 m, a transport length of 9.4 m and a transport height of 3.1 m.

Double Deployment TM 17 and RH 12/140

Our prestige customer Hubert Schmid used their ABI TM 17 and DELMAG RH 12/140 for a project in their home town Marktoberdorf . This was possibly the largest construction project in the recent history of Marktoberdorf.

The area around where today's St. Martin's elementary school is situated looks back on a long history of schools- back as far as the 16th century. It was considered time to bring the entire site up to date and improve it to suit the needs of a modern, future-oriented school concept. First of all, the old school building had to be completely demolished.

A major challenge in this construction project were the soil conditions with the densely deposited molasse. Molasse is the rock erosion material at the foothills of the Alps. The Molasse soil made the earthworks very difficult and posed great challenges for both man and machine. In order to adapt to the conditions, various work processes had to be carried out.

For the sheet piling production, predrilling and soil replacement drilling had to be carried out in advance. The DELMAG drill rig RH 12/140 was used for the soil replacement drilling. A total of around 2000 drilled

meters were exchanged using the Kelly drilling method with a diameter of 880 mm down to a depth of 11 meters.

Simultaneously, the TM 17 carried out the required predrilling. Using the selected VDW („in front of the wall“) method enabled low-vibration and low-noise emissions, whilst in the immediate vicinity of the surrounding buildings. Approximately 2500 meters of predrilling were carried out to a depth of up to 9 meters.

After all the drilling had been carried out, the ABI MOBILRAM TM 17 was used to install the 2200 square meter sheet pile wall consisting of 12 meter long U-profiles driven to a depth of 11 meters. The excavation pit was additionally secured with a 1500 square meter soil nailed shotcrete wall.

The construction project started at the end of 2021 and the new school complex is expected to be operational in September 2024.

*Photo: Specialised civil engineering with TM 17 and RH 12/140 in Marktoberdorf
Source: Hubert Schmid GmbH*



Project: New building- elementary school St. Martin in Marktobendorf

Contractor: Hubert Schmid Bauunternehmen GmbH from Marktobendorf

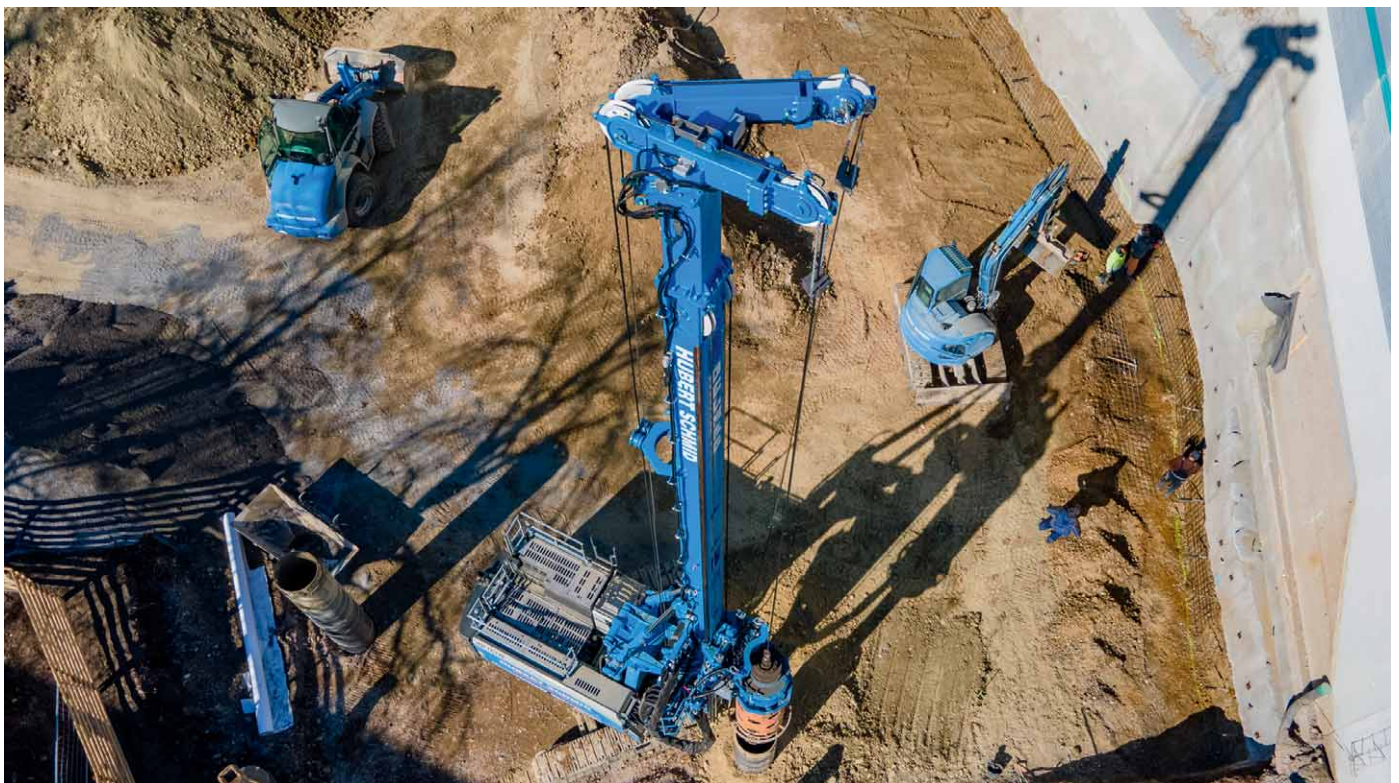
Machinery:
ABI MOBILRAM TM 17 with Vibrator MRZV 30VV and double head drilling system VDW DELMAG drill rig RH 12/140

Process:
Soil replacement drilling in Kelly drilling mode, predrilling with double head drilling system VDW and piling U-profile with vibrator

Challenges:
Existing geology, inner-city construction site



*Photos: ABI MOBILRAM TM 17 with vibrator pile driving (right), Drill rig RH 12/140 birds eye view Kelly drilling (below)
Source: Hubert Schmid GmbH*



Soil Improvement with Vibrator MRZV 15SD

Robl Spezialtiefbau GmbH tested the new ABI vibrator on a construction site in Landshut.

With the addition of the MRZV 15SD, the product line of leader-guided ABI vibrators offers another option. This hammer was specifically developed for the production of full displacement piles and equipped with features such as a hinged joint for quick set-up and a central passage for inserting reinforcement material.

For the production of stone columns, the vibrator is equipped with a hopper and probe. The unit can be transported fully assembled and thus supports a quick set-up process on site.

The hinged joint allows the piling unit to be lowered within a few minutes, e.g. for maintenance work. The vibrator has 15 kgm of static moment and it also has the added advantage that the static moment can

be adapted to a lower value by means of a simple conversion and can therefore also be adapted to different soil conditions or piling probes of different lengths and dimensions.

During its first job on the construction site, the MRZV 15SD created 460 stone columns of lengths between 3.5 and 6.5 m in a narrow grid pattern.

The operator was assisted during the extraction process by the stone column automatic function on the machine, this is an adjustable automated step process. The vibrator is automatically pulled upwards as pre-specified, so that the aggregate can fall into the displaced soil volume and is then compacted by

Photo: Production of stone columns with ABI MOBILRAM TM 13 and the Vibrator MRZV 15SD (below)



Project: Soil improvement measures in Landshut

Contractor: Robl Spezialtiefbau GmbH

Machinery:
ABI MOBILRAM TM 13 with vibrator MRZV 15SD with piling probe-system

Process:
Full displacement piling for the creation of stone columns

Challenges:
Tight grid pattern, inner-city construction site

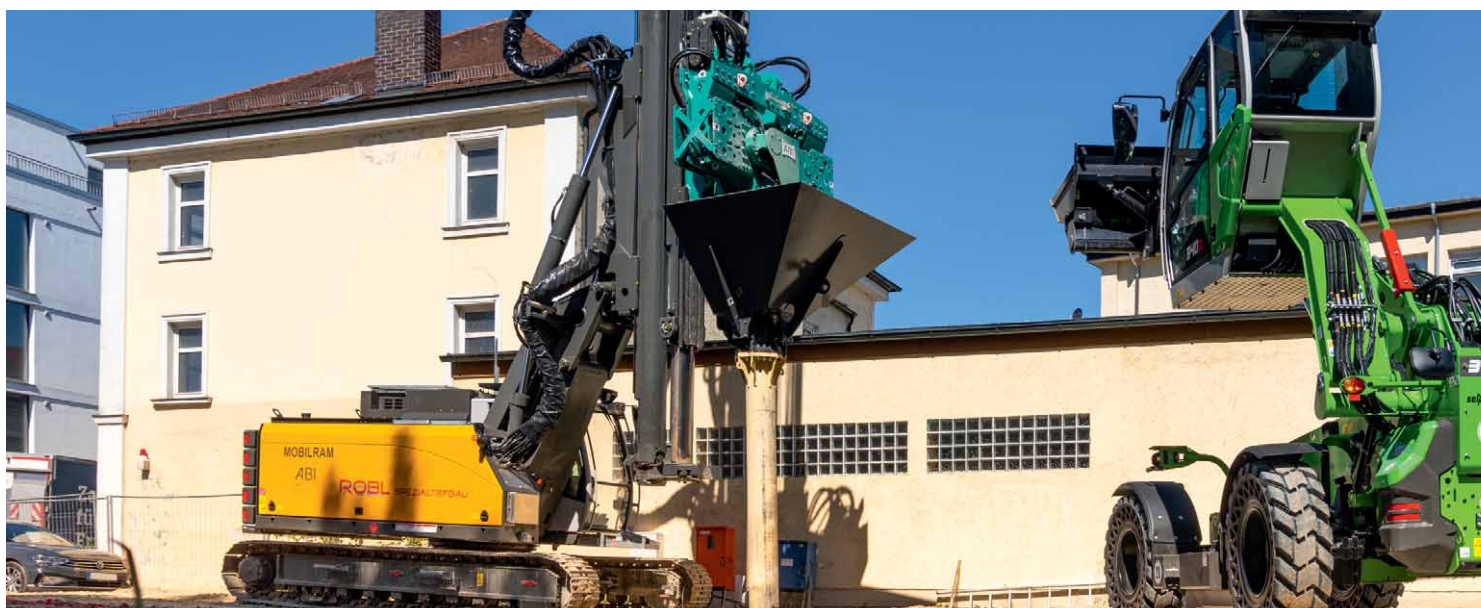
Photos: ABI vibrator MRZV 15SD during the installation of stone columns (right and below)

a short piling process after a change of direction. This process is automatically repeated until the probe is completely extracted.

On the construction site in Landshut, pea gravel 16/32 was used as additional material. It took approximately 5 minutes to complete each stone column.



After completing the soil improvement, the load-bearing capacity of the stone aggregate columns was tested using a plate load test. The test results confirmed the excellent quality of the created stone columns.



TM13 – A Popular Choice Across the UK

The telescopic leader mast TM 13 – a versatile machine providing a wide range of piling solutions.

Over the past three years the ABI MOBILRAM TM 13 has proven to be an increasingly popular choice of rig with UK customers. Its compact design, combined with its ultra fuel-efficient engine and low noise emissions means that it's the ideal rig for a wide range of piling and ground improvement applications work in tight locations and more sensitive environments.

ABI Equipment Ltd offers two slightly different TM 13 MOBILRAMs from our UK hire fleet. One has wider track pads for reduced ground bearing pressures and a larger MRZV 16VV vibrator, but both have the same installed engine power and fuel economy. The newer machine can also load its own vibrator on/off transport wagons using a unique lifting point at the base of the leader mast. This offers further operational and cost saving benefits to customers.

Photos: Loading attachment with the TM 13 (below)

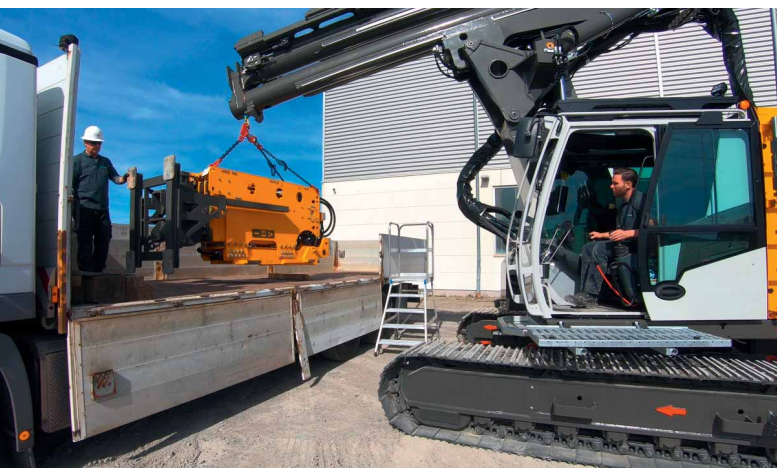


Photo: Job site of Dawson WAM Ltd - ABI MOBILRAM TM 13 with vibrator MRZV 12VV working on the smart motorway project (above)

ABI Equipment Ltd took delivery of their first energy efficient TM 13 in March 2020 and it was soon put to good use on the M4 during the roll out of the smart motorway upgrades. Such were the tight working spaces that on one particular site it replaced a much larger MOBILRAM, our ABI TM 14/17 VSL. The client was extremely impressed that despite its compact size, the TM 13 was more than up to the job.

Paul Kelly,
Contracts Director at Dawson WAM Ltd:

„We were extremely impressed with the new MRZV 12VV vibrator on the TM 13 – thinking originally that this machine may have struggled to take over from the TM 14/17 VSL with MRZV 20VV, but in fact it proved itself more than capable.“



Photo: Job site of Trittech Ground Engineering Ltd - TM 13 with vibrator MRZV 12VV installing stone columns (above)

One of the major attractions of the new TM 13 is its excellent operational efficiency and low noise levels. This made it the perfect choice for Trittech Ground Engineering Ltd when they needed a rig on long term hire for various ground improvement projects across the UK. On each occasion the MOBILRAM TM 13 undertook vibro-stone column works, with each site being treated to a depth between 4- 6 m. The TM 13 achieved or exceeded production expectations whilst generating less noise for local residents and with an amazing diesel fuel efficiency of only 120-litres per day. This compact but powerful rig utilises a 209 kW low emission/compliant diesel engine combined with

Karl Amos, Associate Director at Trittech Ground Engineering Ltd:

„We have been impressed with ABI’s new MOBILRAM TM 13. It has proven to be a powerful, reliable, and very efficient workhorse. Not only has it dealt with the challenges that each site has presented, but we have also seen tremendous fuel savings, reduced operational noise levels, quick mod/demob times and excellent production rates.“

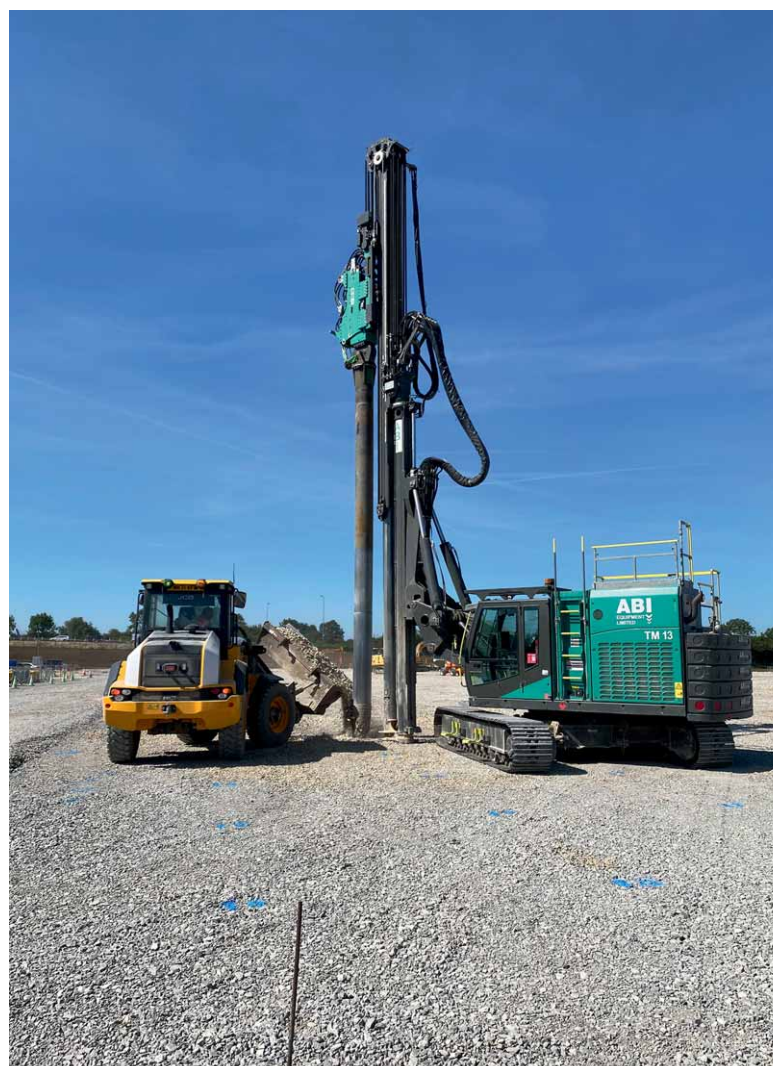
ABI’s Efficiency Drive System and MRZV 12VV variable static moment, variable frequency vibrator to achieve these excellent figures.

The ultra fuel efficient TM 13 has also been used by Vibro Menard Ltd on a jobsite in Milton Keynes. Where it is once again undertaking stone column work, this time utilising a „top-feed“ probe to treatment depths of approx. 5 m. Stone columns are a cost-effective and efficient ground improvement technique, used to stabilise areas of weak or variable soils, or made ground.

David Rickson, Operations Manager at Vibro Menard Ltd:

“This is the first time we’ve used ABI’s new fuel efficient TM13 and we have been extremely impressed with its performance.”

Photo: Job site of Vibro Menard Ltd - TM 13 with vibrator MRZV 12VV installing stone columns (below)





*Photos: Job site of Ivor King Piling - TM 13 with auger drive MDBA (above)
Finished king post wall inside the operational building (right)*

Installed to relatively shallow depths across a proposed construction site, they serve to unify the ground and make it less susceptible to settlement through reinforcement. They are created using a probe that is vibrated into the ground displacing the soil around it, and then the void being filled with compacted stone, gravel, crushed concrete or aggregate.

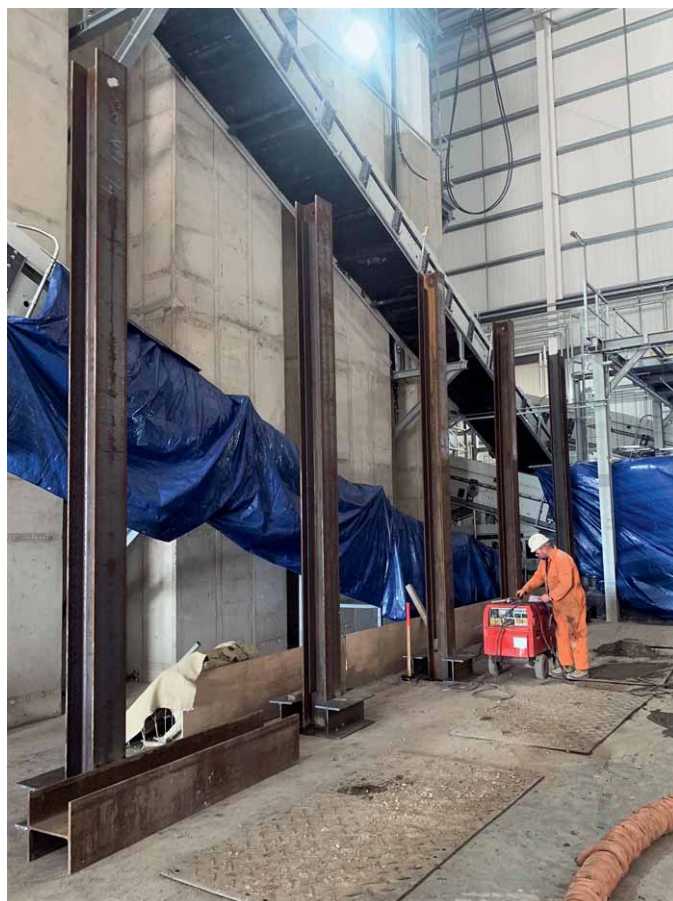
The TM 13 is incredibly compact with a transport width and length of just 2.5 m x 9.0 m. It also weighs-in at just under 40-tonnes. It was its compact nature that attracted Ivor King Piling, one of ABI Equipment's long-standing clients, to purchase a brand new TM 13 in the summer of 2021. Since its arrival it has been put

to work on several projects including the installation of universal columns at Drakelow Power Station in Burton-upon-Trent to form a king post wall.

Working inside an operational building with restricted headroom, the ultra-low emissions TM 13 leader rig was deployed to auger through pre-cored holes in the existing floor slab, then backfill with concrete ready to accept the steel H-beams. The beams were then plunged into the wet concrete using a pile vibrator and temporarily held in place by a steel ground beam to ensure verticality during the curing process.

Tom Goodyear, Construction Manager of Ivor King Piling:

„The TM 13 is already proving its worth, matching the driving power of larger rigs but equipped with a smaller more efficient engine. This also makes the machine easier and lighter to transport, further reducing overall fuel consumption and carbon footprint. Better for the environment, good for customers, good for us!“



RH 24/270 Extremely Short in Leverkusen

DELMAG drill rig RH 24/270 from Fleck Spezialtiefbau drills piles under overhead power lines.

As part of a major modernization and expansion project by the German Railway on the Rhein-Ruhr-Express (RRX) route, many construction measures are being carried out in the city of Leverkusen to expand the S-Bahn (urban rail) network to two tracks.

One section of the construction site includes the expansion of the railway overpass over the Dhünn river. Construction company Fleck produced the piles for the bridge abutments using their RH 24/270. Due to the limited headroom, the machine was converted before starting into a short leader mast in order to be able to work under the existing overhead power lines. Fleck installed eight 16 m long piles with a diameter of 1000 mm into the demanding soil using the Kelly drilling method.

In the short leader mast version, the height of the rotary drilling rig is less than 10.5 m. In addition to this extremely short version, the 5-part leader mast modular construction offers 3 other short leader mast lengths.

The majority of the extensive construction work should be completed by the time of the European Football Championship in Germany 2024.



Photos: DELMAG drill rig RH 24/270 as short leader mast produced drilled piles in Kelly drilling process (above and below)



VDW with Spoil Management on RH 40

On a construction site in Hamburg, Fleck Spezialtiefbau relied on the DELMAG drill rig RH 40 with VDW double head drilling system.

The drilling work consisted of 90 piles with a diameter of 880 mm and lengths between 13 and 18 metres. For this operation, the rotary drilling rig was upgraded with a VDW 300150 double-head drilling unit. The machine drilled through 6 m of clay and the subsequent water-saturated sand.

With a VDW double head drilling system, the soil ejection area is located directly above the casings; the falling soil material can pose a danger to site personnel. For this reason, all continuous flight auger machines without casing or with spoil ejection above a certain height and flighting size must be equipped with a spoil discharge device that ensures that the spoil is safely discharged to ground level.

For DELMAG drill rigs, ABI offers a spoil management in a modular system that can be adapted to accommodate different casing diameters. Other sizes suitable for the drill rigs RH 27 to RH 38 is in preparation and will be available in 2023.

The spoil discharger consists of two units. The upper unit directs the spoil from the casing connector into the discharge chute. The lower unit secures and stows the discharge chute.

The swivel function significantly reduces the loss of usable length and transports the spoil to the side during the drilling process.



Photo: Auger drive VDW 300150 with spoil management system on DELMAG drill rig RH 40

In order to keep the set-up times for the spoil management system to the minimum mostly pinned connections have been used in its design. Practical lifting and lashing points as well as forklift slots are available for safe handling.

Project: Pile production with VDW in Hamburg

Contractor: Fleck Spezialtiefbau GmbH

Machinery:
DELMAG drill rig RH 40 with double head drilling system VDW 300150

Process:

Cased drilling with VDW double head drilling system

Challenges:

Geology: Clay and water-saturated sand, Inner-city construction site



Photos: Pile production with VDW auger drive, the drill spoil is safely guided to the ground so that there is no danger to the construction site personnel

Quadmix Doubles Productivity

The specialist foundation engineering company American Drilling from California doubled its productivity by using a Quadmix drill unit.

A few years ago, American Drilling, a longtime ABI MOBILRAM user, wanted to expand their potential in soil mixing. They already owned two ABI Twinmix drill units and asked ABI sales and service partner Hammer & Steel for support in developing a Quadmix drill unit. The result was a new Quadmix drill unit

TMBA 4-10000 which was subsequently delivered to American Drilling.

The first application was in Berkeley, California, directly opposite the famous Berkeley University, where the site has very difficult soil conditions with layers of sandstone. The sandstone had to be pre-drilled and this demonstrated that the layer was very difficult to work in. During the subsequent mixing work, the new Quadmix immediately demonstrated

its strength; the mixing heads never came to a standstill and even floated through the sandstone. The combination of high crowd force and engine power of 563 kW, made soil mixing with the ABI MOBILRAM SM 18/22 HD just as quick as when using the standard mixing method with a Twinmix drill unit, but four instead of two mixing columns were created in the same time. The results were so impressive that American Drilling purchased the Quadmix.

According to American Drilling, the ABI Quadmix has since proven itself on numerous occasions with very good results. The usual daily production is between 30 to 45 meters of lineal meters at a depth of approx. 6 to 9 meters. Due to the excellent performance, American Drilling has been able to acquire more orders and would now like to invest in a second Quadmix, together with another ABI MOBILRAM.

The Quadmix is characterized by a torque capacity of 87,000 Nm (64,100 ft lbs) and speeds of up to 70 rpm. The individual auger drives are thus able to provide higher torque for mixing in more difficult soil conditions. The high speeds allow the soil to be mixed



*Photo: Quadmix TMBA 4-10000 with cardanic joints for easy assembly (above)
Soil mixing works on a construction site in Berkeley, USA (below)*



with aggregate quickly and effectively, resulting in uniform piles.

The latest Quadmix model offers a finer adjustment with spacing every 75 mm (3 inches), the drill axis spacing can be adjusted between 530 and 840 mm (21 - 33 inches). This new gradation expands the

options for mixing tools with different diameters or designs of the mixing heads.

Based on the operational success, Hammer & Steel will next year expand its machine fleet with two new Quadmix drill units, and two new ABI MOBILRAM TM 26 machines.

Exciting Use for SPD Drilling Mast MD80

Weidmann + Becker Bohrgesellschaft from Rastede specializes in explosive ordnance reconnaissance and uses an SPD MD80 drilling mast for their work.

ABI supplied the excavator mounted drilling mast as an attachment for a 25-ton excavator, which was equipped with a radio remote control in Sweden, with a signal range of up to 500 m. Working at a sufficient distance from the drill hole is extremely important when trying to locate highly explosive ordnance (bombs and artillery shells). The flexibility of connection via a hydraulic quick coupler system enables the attachment to be removed within minutes and then the excavator can also be utilised to uncover and clear any finds.

The drilling mast is equipped with a drill head RH10X with a 4-speed gearbox, which enables high speeds of up to 215 rpm and a high torque of 11 kNm (at 70 rpm) in first gear. The feed length of the drill head is 8 meters. A rotary ring permits inclined drilling of +/- 90 degrees from the vertical to the horizontal.

Depending on the geology, cement slurry is pumped through the drill head center during drilling to keep the drilling and surrounding soil stable both during and after drilling. Empty plastic tubes are pushed into the suspension/slurry, into which the exploration probe is then inserted. These locate and record all nearby ferromagnetic objects. The maximum daily output achieved on a construction site is around 150 drilled holes at a depth of 9 m.

On a built-up area in Neumünster, after viewing some old historical aerial photographs there were some suspected bomb sites located. During the exploration, Weidmann + Becker drilled with a partial displacement auger with a diameter of 120 mm.



Photo: Inclination drilling with partial displacement auger for insertion of empty plastic tubes

Christoph Weidmann, Managing Director at Weidmann + Becker:

„With the development and investment in this device, we not only meet all the requirements of the BG Bau and DGUV with regard to occupational safety, but can finally perform high-quality drilling true to caliber, depth and position at various angles and at the same time present this work economically on the market due to the high performance of this admittedly expensive device.“



Photo: SPD excavator mounted drilling mast MD80

The cohesive clay soil enabled the 9 meter deep drilled holes to stay open, so that the plastic tubes for the exploratory probe could be inserted without injecting any suspension/slurry. However, to ensure the stability of the surrounding buildings, the drilled holes were grouted with a powdered clay cement suspension immediately after drilling. In Neumünster, the exploration team carried out a total of 340 drilled holes using the MD80. The inclination angles were between 25 and 85 degrees.

Detlef Laaser, Head of clearing operations at Weidmann + Becker:

„Thanks to this technology, we are now able to locate explosive ordnance under buildings with minimal effort. A big advantage of the drilling mast is the drill head with an integrated cement flushing head; this makes it possible to inject suspension/slurry without limiting the drilling depth.“

Imprint

ABI Gruppe NEWS

Magazine for customers, employees and suppliers

Publisher:

ABI Maschinenfabrik und Vertriebsgesellschaft mbH

Am Knüchel 4

63843 Niedernberg

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Design and print:

ABI Maschinenfabrik und Vertriebsgesellschaft mbH

