

## MRZV-VV Technology Catches On

The contractors Gebr. Neumann GmbH & Co. KG Bauunternehmung from Emden performed successful tests with the ABI vibrator MRZV 30VV at the Humboldt port in Berlin.

Within the scope of the refurbishment works at the Humboldt port the waterfront structure has to be renovated. According to the tender, the steel sheet piles were to be pressed. As some difficulties were to be expected in the area of corner constructions or at connections to existing steel sheet piles, the work group Gebr. Neumann/Matthäi submitted the suggestion to use a vibrator at difficult locations. To determine whether the vibration method was suitable, test pile drivings were to be carried out on location. The contract awarder agreed under the condition that the tests would be completely monitored through vibration measurements.

The Humboldt port is located in the Berlin district Mitte and covers an area of 33,500 m<sup>2</sup>. The funnel-shaped port connects the river Spree with the shipping canal Berlin-Spandau and was built in the years 1848 to 1850. After the Second World War it was closed. During the division of the two Germanys it marked the border, and the area could not be used. Historically valuable objects of the Berlin Charité are located in direct vicinity to the port, and the Berlin railway station on the opposite side.

During the construction of the new railway station, the Humboldt port got into the focus of the public interest as well.

Measuring points were determined during the site inspection. The nearest building to the Charité as well as the railway bridge that crosses from the station to the port were monitored. Two measuring points were established at the Charité as the building was classified as being particularly sensitive to vibrations due to its historical significance and the existing previous damages. The vibrations were measured and



Photos: ABI MOBILRAM-System SM 14/18 HD, fixed leader mast with variable vibrator MRZV 30VV during pile driving test for refurbishing the waterfront at the Humboldt port in Berlin



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evaluated by the engineering firm DMT Gründungstechnik.

The tests were carried out at the eastern bank wall beginning of May. It is located in the immediate vicinity of the bridge as well as the monitored building of the Charité. Approx. 10 m long double steel sheet piles were vibrated using the ABI MOBILRAM-System SM 14/18 HD and the variable vibrator MRZV 30VV.

The vibrator lowered the sheet piles into the desired depth without difficulties. The evaluation showed that all readings

recorded during the piling operation were significantly below the permissible values. At the bridge, the operations generated less vibrations than the running trains.

The result is very good for the customer as well as for ABI. Under these conditions the MRZV-VV method may be used on this construction site. The new vibrators allow for speeds of up to 2,600 rpm so that the work can be carried out with very low vibrations. ■

## INTEROC BAS 2200 Starts In Sochi

The Russian company Spetstransmonolit uses the INTEROC add-on drilling system for excavators to carry out difficult anchor drilling works in Sochi, Russia.

Sochi, the venue for the Olympic Winter Games 2014, witnesses a tremendous building boom at the moment. In order to enhance the infrastructure, all kinds of traffic routes are improved in the city at the Black Sea.

The skiing areas are app. 30 to 40 km away from Sochi. The routes run through the partially very sheer Caucasus mountains and ascend from sea level up to 2,500 m. Therefore retaining walls and lining of slopes are some of the essential construction tasks in the building of traffic roads and construction of the sporting venues.

From the beginning, the Moscow based company Spetstransmonolit plays a decisive role in the building activities in Sochi. In order to make the anchoring for the new and already existing retaining walls with Ischebeck titanium anchors with a diameter of 50/26 mm and 73/53 mm, the existing machinery park was expanded by the INTEROC add-on drilling system for excavators BAS 2200 in January 2010.

Due to the narrow streets and the high traffic volume during the extension of the venues, the anchors will be installed from positions above and below the retaining walls as well as on busy streets that can only be partially closed to traffic. For reasons of space, conventional anchor drilling equipment can only be used in some cases. The BAS 2200 was the ideal machine to solve this construction task.

Supported by EFE - European Foundation Equipment GmbH from Bad König in Germany, Spetstransmonolit opted for a Hyundai H 36 D hydraulic excavator as carrier. The choice was made on account of the overall weight of the BAS 2200 which is 6.5 t including a filled drill rods magazine. It can hold up to 14 Ischebeck titanium anchor rods 73/53 of a length of 3.00 m each and thus anchors of a length of 42 m max. The magazine as well as the clamping and breaking device has already been tested with Ischebeck anchors at ABI and modified due to the given requirements. On Ischebeck titanium anchors the anchors serve as drill rods at the same time. One of the advantages of the BAS 2200 besides the drill rods magazine, is also the longitudinal displacement and the optional lateral slewing function of the slide.

The connection plate between the BAS 2200 and the excavator arm was fabricated and installed by the customer himself in cooperation with ABI. The first installation of the BAS 2200 to the carrier was made on the construction site in Sochi, due to scheduling problems. There, all necessary hydraulic and electrical connections were prepared, and the BAS 2200 mounted to the excavator. The adjustment of the radio channels with the local police, that used the same frequency, caused some problems.

The deciding factor for the customer Spetstransmonolit to buy the BAS 2200 was the reduced effort to assemble and disassemble it on the hydraulic excavator, so that the carrier can

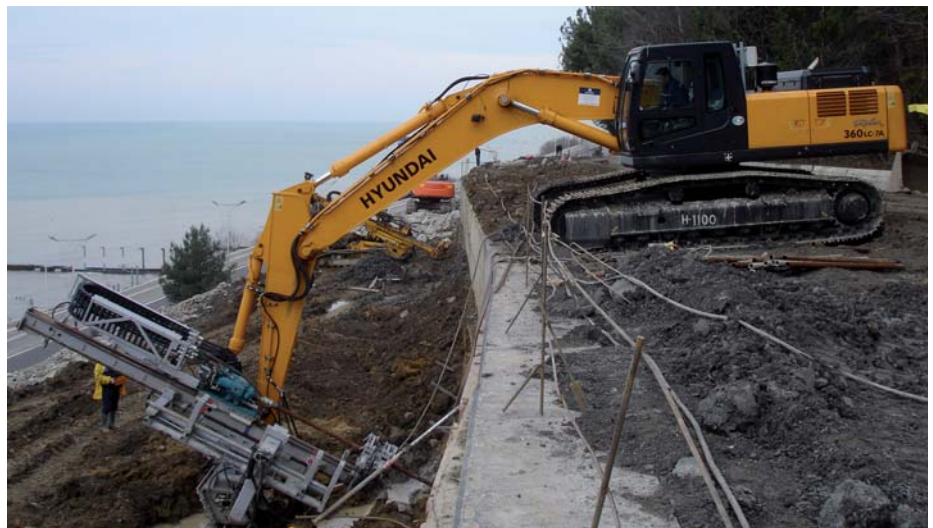


Photo: INTEROC add-on drilling system BAS 2200 mounted on Hyundai hydraulic excavator in Sochi installing anchors

be used for multiple purposes in addition to the installation of anchors. Using the installed hydraulic drifter Eurodrill HD 5012 the Ischebeck titanium anchors with diameters of 40/16, 52/26, 73/53 mm that are commonly used in Sochi, can be produced in lengths of up to 42 m. With this equipment the BAS 2200 is also suitable for heavy anchor rods with a diameter of 103/76 mm. Since the delivery of the BAS 2200 in January 2010, 6,200 m of permanent anchors Ischebeck TITAN 73/53 were drilled and installed in app. 3,000 operating hours.

The difficult and partially rocky soil often pushes the equipment to its load limit, without equipment failures occurring. The equipment of the machine with a well-balanced package of wearing parts prevented major down-times. The INTEROC add-on drilling system for excavators has proven itself under heavy conditions and works to the fullest satisfaction of the customer. ■

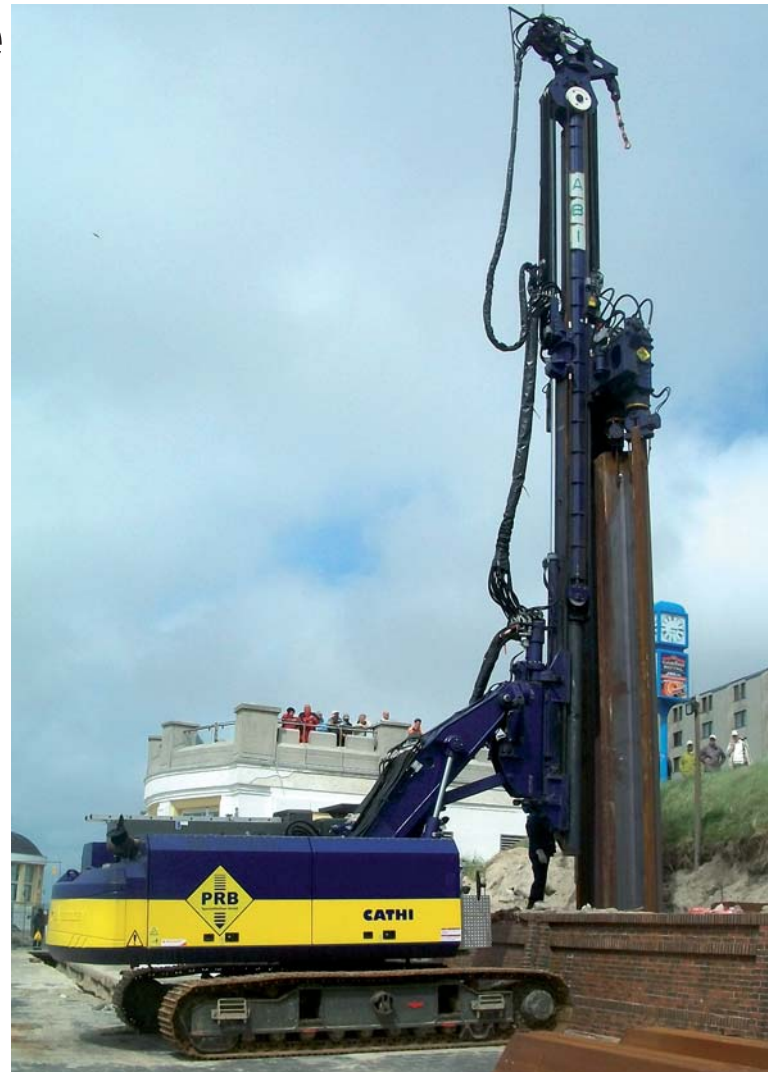


# Clear The Promenade For Cathi

The company PRB Spezialtiefbau GmbH carries out sheet piling works during the repair of the stroll way on the island of Borkum.

The East Frisian island of Borkum is a popular holiday destination. Besides the beautiful nature the visitors to the island were able to gape at an ABI machine in operation on the stroll way. The machine, a TM 13/16 with the pet name Cathi, was equipped with the Hydro-Press-System HPZ for hot-rolled Z-shaped steel sheet piles, and pressed pile elements into the sandy ground along the coast.

The retaining wall at the shore on the west side of the island is heavily stressed by the motion of the sea, and the storm tides in the past years worked heavily on the wall that is over 135 years old. Together with the sea and underwater groins the retaining wall serves as a stabilization of the western head of the island on the one hand, and on the other hand as part of the power construction system to maintain the navigability of the adjacent Ems fairway. A revision of the stability revealed an inadmissible overflow considering the current load by the sea. This could lead to an erosion of the protective dunes on the landside of the wall and consequently to the destruction of the entire retaining wall. As a result, the app. 4 km long heavy-weight wall which also serves as a promenade (stroll way), will be restored in an expensive construction project.



Photos: ABI MOBILRAM-System TM 13/16 with Hydro-Press-System HPZ on the jobsite at Isle Borkum

The construction work started in January 2011 and is divided into three construction phases. The company PRB responsible for the pressing work. The works directly on the stroll way can only be carried out from mid-April to October as there are no storm tides during this period. In addition, strict off-times have to be observed. The adjacent tideland is part of the UNESCO World Natural Heritage since 2009.

A total of 14,500 square meters of sheet piling will be installed. The sections are 8.30 and 6.00 meters long respectively. The gentle pressing method was not only chosen because of the sensitive subsoil that consists of fine sand, shell sediment and largely dune sand, but also for reasons of protection of the environment. The investment funds met by the Federal Government amount to app. 15 million Euros. ■



Photo: Camera Assembly



## Forster Orders Its 25<sup>th</sup> ABI Machine

The traditional building contractor with his head office in Braunau upon Inn (Austria) and a branch in Simbach upon Inn (Germany) again decided in favour of ABI for the modernisation of its machinery park.

The Company was founded in the year 1955 by Felix Forster sen., who started out with a gravel pit. In the beginning, the excavation was painstakingly done by hand with "shovel and pick", the transport with a tractor and a self-constructed trailer. At the beginning of the sixties already, several excavators could be acquired (mostly Sennebogen equipment at the time), that were rapidly employed all across Austria and in the seventies also in Germany and even East Germany.

These excavators were also used to drive-in and extract sheet piles and channel boards, using methods that Mr. Forster thought were much to time and work force consuming. The enterprising do-it-yourselfer was repeatedly looking for effective techniques and found them at ABI.

In the year 1982, when his sons Felix junior and Thomas joined the business, the first RE 8000 leader was attached to one of the many Sennebogen excavators that Forster was running. This equipment proved itself worth such that a second machine was acquired shortly after and another eight machines with leaders of a useful length from 10 to 17 m within five to six years. With these machines and a constantly enhanced know-how, Forster gained an excellent reputation as a powerful and reliable partner in the construction pit sheeting sector in Austria and Germany.

Naturally, Forster followed the ABI motto "always one inch ahead" and continuously replaced the existing equipment with more modern and more powerful machines, so that they just recently ordered their 25th ABI machine. The new TM 13/16 SL will be delivered next autumn. Both companies benefited from the fact that ABI took up suggestions for improvement gained from Forster's continuously evolving experience, and implemented them successfully.

Sceptical at the beginning regarding the advantage of the new vibrator generation "VV" with additionally variable hydraulic displacement, Felix Forster jun. was so content after two new TM 14/17 VSL with the MRZV 24VV vibrator were put into service recently, that he is speaking of a "quantum leap".

Using these new vibrators the hydraulic driving energy can be employed so efficiently and still with the lowest possible vibrations, that there are already doubts whether some of the sheet piles can still be extracted using Forster's well-tryed system of pulling with lorry mounted crane and free suspended pile drivers.

"After the very promising first tests of the directional vibrating at our large construction site in Tyrol I hope that this technology will soon reach commercial viability. I expect this technology to be an optimum complement to the "VV" technology", says Mr. Felix Forster jun. "Due to their technical competence but also to the friendly personal relations to the Messrs Heichel and many of their employees, ABI will continue to be the partner of choice for leader mast guided pile drivers." ■

*Photo: Forster's machinery park of ABI machines*





# DELMAG Diesel Pile Hammers In The UK

ABI Equipment Limited (ABI's UK subsidiary) recently supplied DELMAG D19 and D62 diesel hammers for two separate port projects in the UK.

## Loch Ryan Port Development

This large scale project made use of a DELMAG D62-22 diesel hammer. The civil engineering company McLaughlin & Harvey Ltd. (Newtownabbey, Belfast in Northern Ireland), rented the DELMAG diesel hammer for the construction of a jetty at the new port facility on Loch Ryan near Cairnryan (Scotland). The client, Stena Line, wanted to move their existing North Route port by about 9 miles (approx. 15 km) from Stranraer to Cairnryan. This strategic move is to enable shipping journey times to be reduced by app. 45 min, being closer to the mouth of the Loch, whilst also permitting investment in larger commercial vessels, with the increased channel depth.

Among other things, the project comprises the construction of a 260 m long jetty, dolphins, terminal buildings, maintenance buildings, car parks, etc. Due to the amount of reclaimed land, most of the structures have to be piled.

The jetty is a design and build section of the project and includes a new automooring system. It must also withstand the high birthing forces associated with docking during stormy weather.

The jetty was built in two sections using two different methods to minimise environmental impact and to meet the project schedule. The first 120 m section was built from a stone platform pushed out into the sea, which was then used to install drilled tubular steel piles 36 m in soft alluvian clay. A concrete deck slab was then cast insitu on top.

The next 140 m section was built using the so called "over the top" method. The construction was not carried out from a barge, but instead from the land. An auxiliary piling frame was connected to the previously installed section. It served as a guide template for the driven elements, and ensured stability. The 60 m piles, with a diameter of 914 mm and a pile shoe, consisted of two spliced steel tubes. Three piles were placed in the piling frame by a crane and driven to their final depth. They were then connected to pre-fabricated 50 tons cross head units whilst also being tied back to the previously installed section with pre-cast planks. After that the piling frame was placed forwards for the next row of three piles, at 6 m spacings, making progress further out to sea.

As piling works were not completed from a barge, there were many external factors removed from the equation (ie. swell, barge stability, logistics). The "over the top" method also allowed a repetitive process with fewer crane operations. With most of the

works undertake during the winter months this was particularly important. The diesel hammer drove a total of 84 vertical piles to final depth. At the end of the jetty another 8 raking piles were installed. To do so, the D62 was equipped with a hydraulic starting device. The 1:3 raking piles consisted of 15 m sections which were driven a further 8 m deeper than the vertical piles, due to the expected tension loads.

McLaughlin & Harvey Ltd. chose the DELMAG diesel hammer for several reasons. The D62 was able to handle the heavy driving task in the existing geology with dense sands



Photo: Aerial image of the job site at Loch Ryan, Detail: DELMAG diesel pile hammer D62 driving raked piles

at final drive and with a pile shoe. The "over the top" method permitted the finishing works to be carried out directly after the piling work and the absence of a power pack and hydraulic hoses was a significant factor in this process. "The fact that no oil lines and power packs were present considerably reduced the risk of polluting the environment" said assistant project manager Martin McKeown, "in the end, the DELMAG offered us a highly efficient impact hammer with relatively low weight. It proved to be a cost effective solution for us. The equipment was easy to look after and extremely reliable throughout the entire 12-month period of use."

## Kelvin Harbour in Glasgow

Specialist marine civil engineering contractor LB Marine Ltd. (Lanark, Scotland), was awarded a contract to carry out the pile installation for the construction of the new slipway and mooring jetty on the mouth of the River Kelvin where it flows into the River Clyde, Glasgow for Main Contractor's Luddon Construction Ltd (Glasgow, Scotland).

LB Marine's contracts manager, David Gardner, is quite familiar with ABI Group products and had previously undertaken driven





Photo: DELMAG diesel pile hammer D19 with swinging lead MS 1202 in Glasgow

piling works on a project at the Govan shipyard in Glasgow using a DELMAG D62-22 diesel hammer. "Due to restricted working space we were limited in our choice of suitable cranes. We were looking for a high energy impact hammer with the lightest possible handling weight. Based on my experience at the Govan shipyard project I knew that DELMAG diesel hammers offered high power to weight ratios, achieving bearing capacities of hydraulic hammers weighing almost twice as much. The DELMAG D19 offered us a solution with at a total weight of just over 7-tonnes and completely eliminated the need for a power pack or hose bundle," said Gardner.

The construction site is located near the New Transport Museum at Pointhouse Quay in Glasgow. The jetty is for the new passenger ferry between Scotstoun and Govan (districts of Glasgow). For the foundation of the slipway, 16 No piles with a diameter of 508 mm and a length of 24 m had to be installed. First they were vibrated in using an excavator mounted vibrator, then they were back driven using the DELMAG D19-52 with swinging lead MS 1202. Subsequent bearing capacity tests confirmed loadings between 380/450-tonnes had been achieved. Another 10 piles were driven for the floating mooring jetty. In June 2011 the first ships will dock at the new jetty. ■

## Distribution Partner For INTEROC Won

Since last year, the company Traxxon Rock Drills is the official distribution and service partner for INTEROC products in Canada.

Traxxon Rock Drills Ltd. was founded on October 1, 2001 and its beginning was the result of a merger of two older, well established companies, Traxxon Equipment and Pacific Percussion Industries. The two entities formed together to expand their capabilities in manufacturing and distribution of equipment to the construction and forest industries. Traxxon Equipment got its start in the 1960's manufacturing logging equipment mainly for operations active in the forest industry along the rugged British Columbia coastline. Pacific Percussion Industries started in the early 1980's supplying drills and tooling to both the forest and construction industries, later proudly taking on the Tamrock line of drilling equipment in the early 1990's.

Traxxon's main office is located near the picturesque city of Vancouver, British Columbia, Canada which lies between the Pacific Ocean and the Coastal Mountain ranges. Traxxon is staffed by a core group of experienced and dedicated employees who are focused on customer service and product knowledge. The company mission is to provide the highest quality products and technical support available to the drilling industry. Traxxon manufactures its own line of TR-EX high performance attachments for drilling and blasting. Traxxon is also the official distributor of Sandvik (Tamrock) construction drills and consumable products for Western Canada.

Traxxon had been on the lookout out to find a line of foundation drilling equipment that they could represent in Canada. One of their key customers highly recommended the INTEROC drills. Traxxon considers INTEROC to be a premium quality drill and meets their requirement of only representing quality products with a proven track record of performance and durability.

ABI and Traxxon look forward to a successful and long term business relationship. ■



Photo: Shaun Norman of Traxxon responsible for INTEROC

## Bridge Foundation Using Twinmix Procedure

The company Meyer & John GmbH & Co. KG, Schwerin branch, constructs a bridge foundation near Rom using the ABI telescopic leader mast TM 11/14 and the Twinmix auger drive TMBA 3200 in a Twinmix procedure.

In this case it does not concern Rome in Italy but the commune of the same name in the rural district Parchim in Mecklenburg-Western-Pomerania in Germany. There, the federal road B 191 leads over the Schalentiner Mühlenbach and shows severe damage. A new bridge will be built app. 30 m from the old





The mixed blocks have an overall surface of 750 m<sup>2</sup>, the depth varies between three and four meters. The mixing tools were accurately positioned using a GPS transmitter so that the connection to the adjacent mixed elements was ensured.

The bridge and the street works are scheduled to be completed in May 2012. ■

*Photo (left): ABI MOBILRAM-System TM 11/14 mixing piles using the Twinmix procedure  
Photo (below): View in the operator's cab with additional equipment for GPS positioning of the piles*

one and will be connected to the old road by a new road of app. 700 m.

Originally, the arched bridge was to be founded with drilled piles. This procedure was replaced by a supplementary offer with two monolithic blocks using the soil mixing method. The reason for this was that it could be realized in less time of about eight weeks, as static test loadings were planned for the drilled pile foundation.



## Combi Clamp Assembly MZK 800

The company Adolf Keller Spezialtiefbau GmbH performs piling works to construct foundations for new overhead contact lines on the section Weinheim – Schriesheim at the Bergstrasse.

12.5 mm. The lengths varied between 5 and 9.5 m, depending on the subsoil. The ABI MOBILRAM-System TM 11/14 SL was used to carry out the piling work. The small, compact machine was the ideal cast for the construction site. It was very narrow and ran along the very busy B3 for the most part, which is also called Bergstrasse in this section.

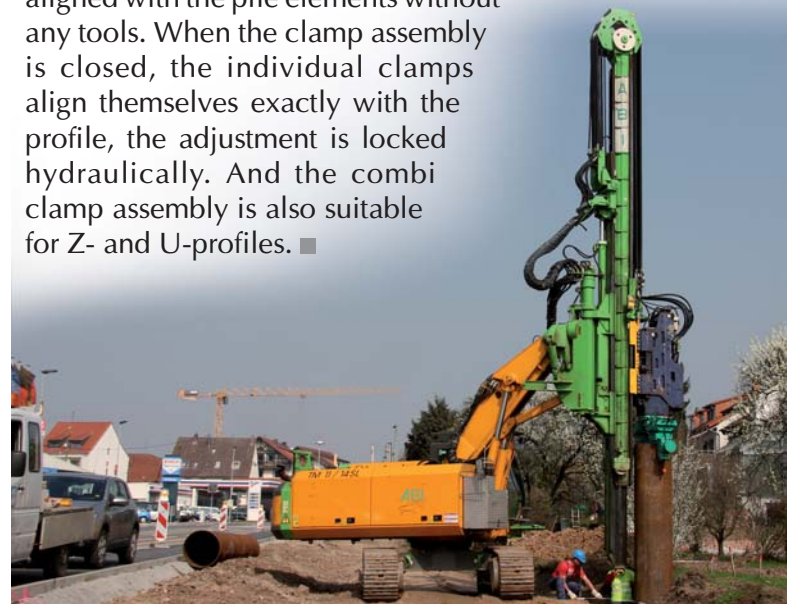


*Photo (above): Combi clamp assebly MZK 800  
Photo (right): ABI MOBILRAM-System TM 11/14 SL with Vibrator driving casings*

The telescopic leader mast for the piling of casings was equipped with a variable vibrator MRZV-V and the combi clamp assembly MZK 800. The twin clamp assembly is able to transmit the vibrator's forces to the pile elements in an optimum way, so that damage to the casings can be nearly excluded. The advantage of the new combi clamp assembly MZK 800 is its simple operation. The clamp assembly can be aligned with the pile elements without any tools. When the clamp assembly is closed, the individual clamps align themselves exactly with the profile, the adjustment is locked hydraulically. And the combi clamp assembly is also suitable for Z- and U-profiles. ■

The railway line is extended to two tracks by the Rhein-Neckar-Verkehr GmbH from March 2010 to Summer 2012. Line 5 had reached its capacity limits. The velocity and the reliability of the section can be enhanced with the extension. In addition, all stops and railway stations will be altered to barrier-free facilities.

Among other things, the works include the new construction of overhead contact lines. Adolf Keller Spezialtiefbau installed a total of 75 steel casings as foundations for the contact line masts. The casings had a diameter of 711 mm and a wall thickness of





# Review CONEXPO-CON/AGG 2011

Both machines, a RHV 40 and a TM 22, were completed on time and went on their journey across the ocean to Las Vegas in the desert of Nevada.

Every three years, they host the world's second largest trade fair for construction machinery after the bauma. Over 120,000 visitors passed the fair's gates, app. 24% of them coming from abroad from over 150 countries. Our distribution and service partner Hammer & Steel was present with an own stand and displayed the ABI telescopic leader mast TM 22 and the DELMAG drilling rig RHV 40. Due to the volcanic eruption and the consequent ban on flying during bauma 2010 in Munich, the representatives from the American continent were only few in numbers, so that one can speak of a premier for the two machines in the USA.



Photo: Hammer & Steel booth at the CONEXPO 2011

In general, Hammer & Steel were satisfied with the course of the fair. "Most of the executives visiting the fair were cautiously optimistic; housing aside which is still really shattered, the uncertainty in the US construction market can still be felt," said Bob Laurence, managing director of Hammer & Steel.

One reason for the visitors to come to the H & S stand to examine the newest equipment, technology and innovations. Their feeling was their competitors are trying to get a production edge by employing new technologies. If they want to survive in this competition they need to keep up with the latest technology and invest in new machinery. Also appreciated were those guests that came just to say hello and thanks for the collaboration over the past years. "We are very proud of our repeat business and, as judged by their number, they all seemed to be genuinely enjoying our companionship and that of their fellow contractors," expressed Bob Laurence pleased.

"After each show, we always seem to wonder if the next could ever be any better. That was the feeling again this year, as it was a great show that exceeded our expectations. We are looking forward to the next one," added Bob Laurence.

Shortly after the fair, the new telescopic leader TM 22 was transported to New York City for its first employment. Equipped with the vibrator MRZV 30VV using the unique VV technology, the machine extracted the app. 15 m long steel sheet piles with the greatest of ease. ■

Photo: ABI MOBILRAM-System TM 22 with Vibrator MRZV 30VV extracting steel sheet piles



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