

Soilmec Journal
Year 8
Supplement of
issue no. 1/2013

sm journal

SOILMEC on SHOW

new products
technology

Soilmec vision
From the site



bauma
2013

special issue

supplement

1 2013



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Soilmec Journal – Year 8, Supplement of issue No. 1/2013

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Soilmec

Foundation Equipment



Simone Trevisani, Managing Director.

Soilmec: Your Solution Provider

Soilmec vision today is: SOLUTION PROVIDER.

Soilmec wants to become your Solution Provider.

Because for us the customer comes first and we can offer many different solutions based on the project or issues at hand.

Thanks to the synergies between the Trevi Group and a worldwide Sales Network, Soilmec knows the most pressing problems the customer is trying to solve. The infinite case records of works carried out by our rigs and the

many different applications faced so far, the professionalism as well as the total dedication and passion of the Soilmec people, enable us to assist worldwide everyone who wants to work with our machines and to solve with him and for him any problem arising from the foundation and subsoil engineering.

Therefore, today Soilmec is capable to provide world-class innovation, excellent after-sales support, outstanding technical support and essential training. All these things, together and separately, give our customers solutions to problems they may encounter in their business or projects.

BAUMA 2013 will be for us the occasion to underline our Vision with the decision to present new models together with the most advanced technologies.

(follow on page 4)



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(follow from page 3)

Therefore, the equipment we will present are, among others, the SR-100 in CSP (Cased Secant Piles) version, the same machine that is successfully performing the supporting walls for the Copenhagen Metro ring; the SR-90 in Turbojet configuration for soil consolidation, the same machine that was part of the Soilmec fleet working for the construction of 8,5 km long levee in New Orleans within the Hurricane and Storm Damage Risk Reduction System; the SR-60 in displacement pile configuration, to minimise the excavation spoil, together with five micro drilling models equipped to perform CFA (continuous flight auger piles), Soil investigation, Jet-grouting and double rotary drilling system.

A complete urban job-site installation for Hydromill will be also presented, with an SC-100 with Cougar SH-30 Hydromill together with SMT-500 City Compact Plus Mud Treatment System. We are proud to underline that Soilmec, together with Trevi, has been the first to reach the extraordinary depth of 250 meters, a real new step in the foundation industry.

For the diaphragm wall construction we will also present our Heavy Duty Cranes SC-90 and SC-70, equipped respectively with hydraulic grab and mechanical grab.

A Drillmec G-75 water well rig and a HD-535 direction drilling rig will then complete the equipment on show, together with the complete range of tools and ancillaries to supply the complete job-site to our customers.

We think that this fair will really prove SOILMEC capability to address customer needs with geotechnical knowledge, equipment, technical support, training and service through a worldwide network.

Simone Trevisani

A new strategic vision

Soilmec remains an undisputed leader in the industry of machinery and equipment for foundation and ground engineering. Now the company aims to go beyond its role as a manufacturer and has geared up to offer a **wide range of services** structured in different levels.

Today the market of ground engineering projects has become more complex; the technological and design solutions demanded by construction companies increasingly require specific experience, an ability to address extraordinary logistical challenges and the availability of properly trained personnel.

Thanks to its status as a company of Trevi Group and its constant collaboration with Trevi (a major foundation and ground engineering company operating on a global scale), Soilmec benefits from an expertise in projects and applications that goes well beyond its own competencies and excellence.

From project consulting to logistics evaluation, materials selection, personnel training through the **FTA** (Foundation Training Academy), Soilmec starts out 2013 on a **new path that places sales and after-sales service alongside a range of services** that will empower customers to take on any type of project.

Soilmec, key player in ground engineering

Thanks to an innovative, ever-expanding product range and increase in production capacity, **Soilmec has become the standard of reference in the field of ground engineering.**

Soilmec will welcome Bauma visitors at a 2,750 sqm exhibition space (open air area north FGN - Stand N522) featuring a two-floor stand (totaling 800 sqm) with comfortable reception areas. The Soilmec "headquarters" will allow visitors to discover the many advanced technologies to meet the challenges of foundation and ground engineering, as well as get **a first-hand look at some of the new products** that will be introduced on the market in 2013.

events

6

Soilmec at Bauma 2013

NEW PRODUCTS AT BAUMA

Soilmec will introduce several key innovations and range upgrades for numerous technologies, including:

- Large diameter piles > 8-9
- Micropiles > 10-11
- Hydraulic crawler cranes > 12-13
- Diaphragm Wall Equipment > 14-15
- Job Site Equipment > 16-17
- Drilling > 18-19

Soilmec virtual stand

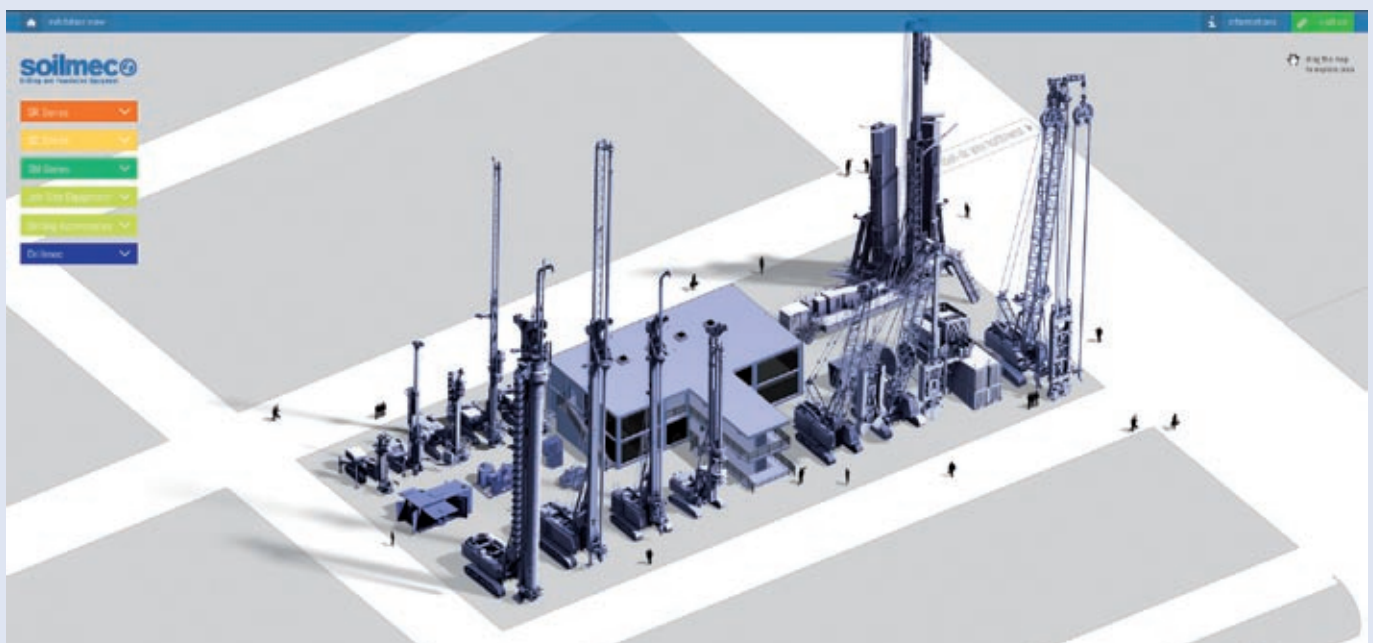


events

Soilmec at Bauma 2013

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Soilmec has launched a **new website dedicated to Bauma and to discover Soilmec equipment on show!** An interactive menu will bring you inside Soilmec exhibition space. If you visit the virtual and interactive stand of Soilmec in our homepage www.soilmec.it you will see on the first screenshot (above) their exact location inside the general exposition area, and if you pass to the second screenshot (below) you can also see all the machines which are going to be exposed, together with related technical data sheets and 3D renders. Last, again in their virtual stand, you can register yourself and book a visit during Bauma, either securing yourself a gift.



Large diameter piles

Bauma 2013 will be the platform for exhibition of **the new generation of Soilmec's SR hydraulic drilling rigs for large diameter piles.**

Based on the experience and success of the first generation, the new Soilmec SR rigs have been designed to improve to their productivity and operating flexibility to an ever higher degree, in addition to operator comfort and safety.

new products

8

More power

The new rigs are installed with new TierIII and Tier4 diesel engines and are fitted with more powerful and lightweight rotaries with **torque increased by up to 20%**. The machines also offer an **effective pull up of up to 38% more** compared to prior models. And in terms of weight, the range has been designed so that models do not overlap.

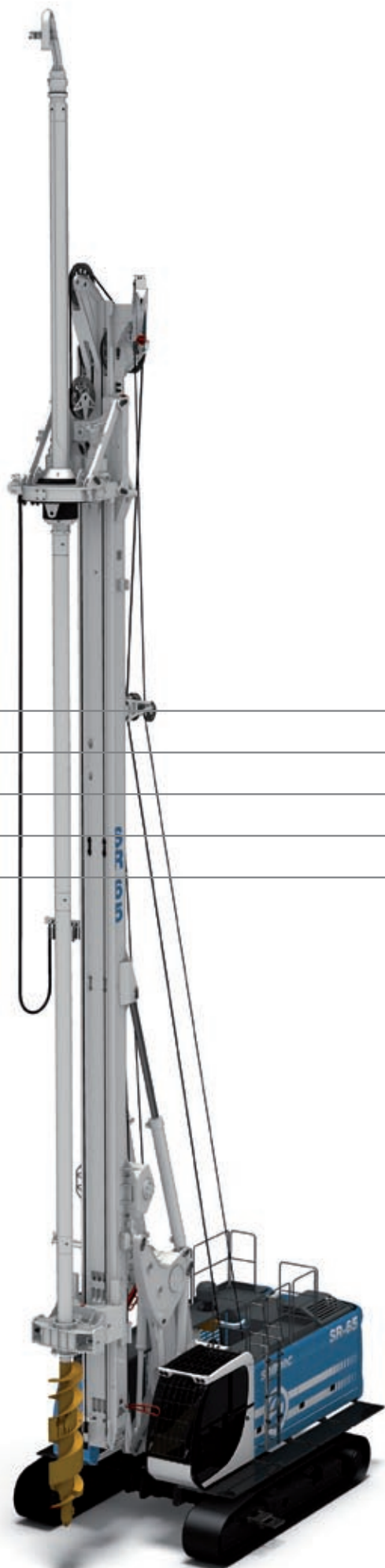
Increased operating flexibility

The new generation of SR rigs also have a new winch version pull down system featuring a standardized and simplified design to further improve safety and efficiency.

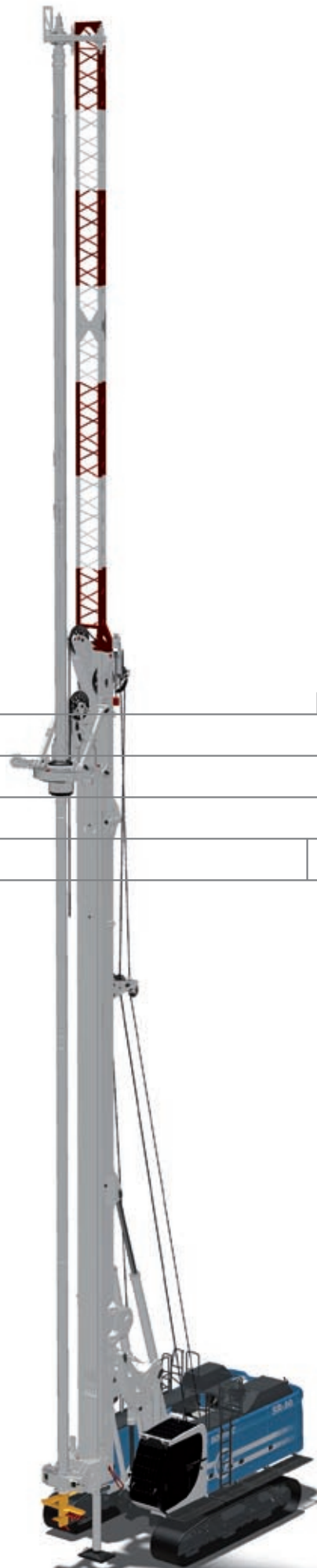
Switching from the cylinder to the winch version is a quick procedure that boosts the multifunctionality and adaptability to different applications, features punctuated by the high torque values of the spin-off rotary and the multi-gear. The new generation SR line has also seen **a reduction in weight** but an improvement in performance thanks to the use of high-strength steels and a new antenna design with standardized section.

Exceptional cab design

The new generation SR rigs come with new cabs, now larger (width increased by 1,040 mm), with improved comfort and visibility, and in particular, equipped with a new DMS system (Drilling Mate System) to allow control of all operating parameters.



SR-65 DP.



SR-90 TJ.

new products

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Micropiles

Soilmec will introduce several key **innovations and range upgrades for SM series drilling rigs for micropiles and anchoring.**

The new SM-8, SM-14 JG, SM-17 drilling rigs are the outcome of Soilmec expertise and Puntel engineering aimed at increasing performance, safety and innovation.

new products

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Versatile movement

The new drilling rigs stand out for an **extensive series of movements** which make it possible to work in various positions and to perform lateral movements in total safety. Thanks to innovative kinematic mechanism, the machines can also operate parallel to the tracks. The success of the SM-14 model prompted engineers to adopt for all new models **the crawler undercarriage with tilting gauge**, which enables improved agility and stability and hence safety.

Adaptable in any operating condition

The new SM drilling rigs are designed to be powered by **both TierIII engines** and the new **Tier4 engines** boasting high performance and low emissions in addition to extreme ease of maintenance. Thanks to a wide range of rotary heads, clamp/joint breakers and modular mast with varying travel of the rotary heads, the new models will be suited for an extremely varied range of working applications and technologies.

Improved safety

As a result of Trevi Group's accumulated experience on work sites throughout the world, Soilmec has **improved safety for the operator and all those working in proximity to the drilling rig.**

These improvements have been achieved by carefully studying all potential hazards, adopting the most sophisticated safety systems and equipping the machines with latest generation remote controls for total control even at a distance.



SM-17.

new products



SM-14 JG.



SM-8.

Hydraulic crawler cranes

new products

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Soilmec present at Bauma the latest **two new model** of its range of **multipurpose hydraulic crawler cranes for heavy duty operations**: the SC-70 HD equipped with the GC-11 cable grab and the SC-90 HD equipped with the GH-15 hydraulic grab with rotograb system.

Soilmec hydraulic crawler cranes are designed with a modular and compact concept enables a simple and fast conversion between a wide range of possible applications, including work with: lifting, hydraulic or mechanical grab, hydromill, hammer grab, chisel, casing oscillator, vibratory driver, hydraulic and mechanical rotary, polyp grab, clamshell, dragline.

The new SC cranes are equipped with high volume engines providing excellent fuel efficiency, refined air management and compliance with exhaust emission regulations TierIII and Tier4.



SC-70 with GC-11.

new products

13



SC-90 with GH-15.

Hydromills

Bauma will also see Soilmec exhibiting the **SC-100 with new Cougar SH-30 hydromill**. Soilmec's tried and tested technology has been further refined to offer the most advanced technology available for this type of equipment.

new products

14

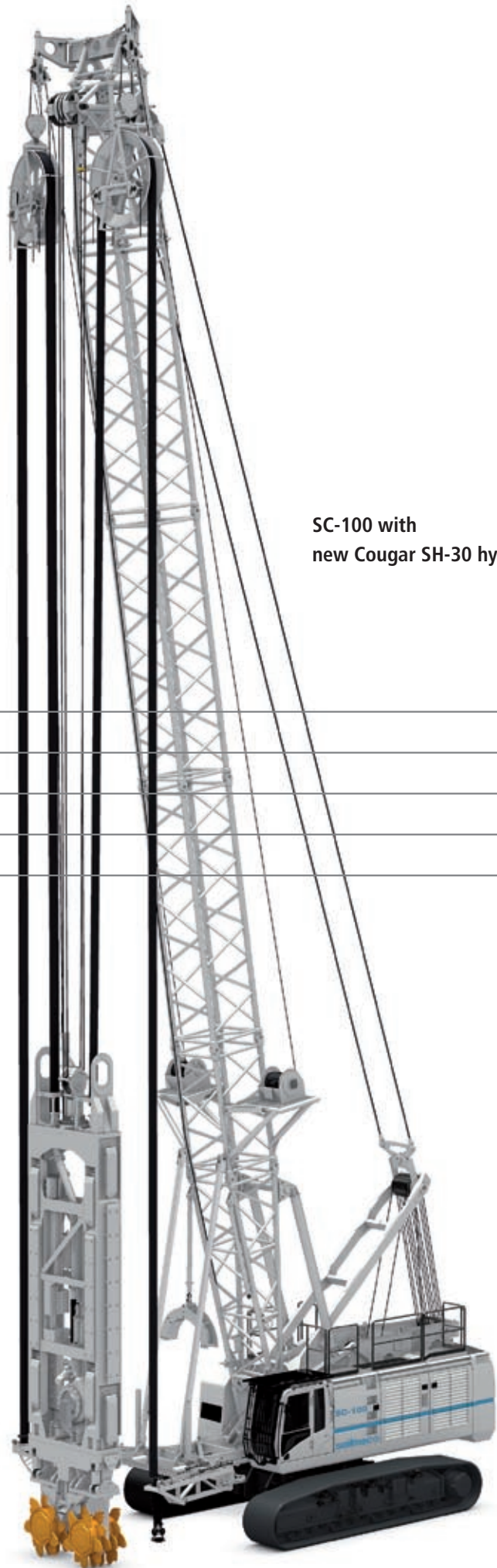
A history-making record that has changed technology

In October 2012 a **Tiger SC-200 hydromill installed with the HDD system** (Hose Drums Design) to reach extreme depths **excavated a 250-meter slurry wall**, marking a record that has permanently altered the application limits for this type of equipment.

The new module (identical to that exhibited at Bauma) contains all the innovations and improvements as that used for the 250 m slurry wall excavation. Soilmec will be utilizing these new solutions on all hydromills.

To date Soilmec is the only manufacturer to offer a patented double system that uses a combination of the movement of 12 independent flaps (each adjustable in three different positions) and the independent movement of the milling drums **to control the position of the milling module during excavation**.

All the new Soilmec hydromills will also mount the **new DMS system** (Drilling Mate System) for the control of all operating parameters.



SC-100 with
new Cougar SH-30 hydromill.

new products

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NEW

City Compact Plus
Mud Treatment System

7T-600J

SGM-45

Injectors

Grout mixing plants

Centrifugal
self-priming pumps

Job Site Equipment

Soilmec offers a machine, a technology and a solution to meet foundation needs.

A comprehensive and technologically advanced jobsite, enriched by IPC technology with highly performing auxiliary equipment and accessories, is presented at Bauma in the two product lines: **the Mud line**, dedicated to the use of bentonite and slurry, and **the Grout line**, dedicated to the preparation and injection of water/cement mix.

new products

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Mud Treatment System
SDM-35 / SMT-500 / SMD-90.

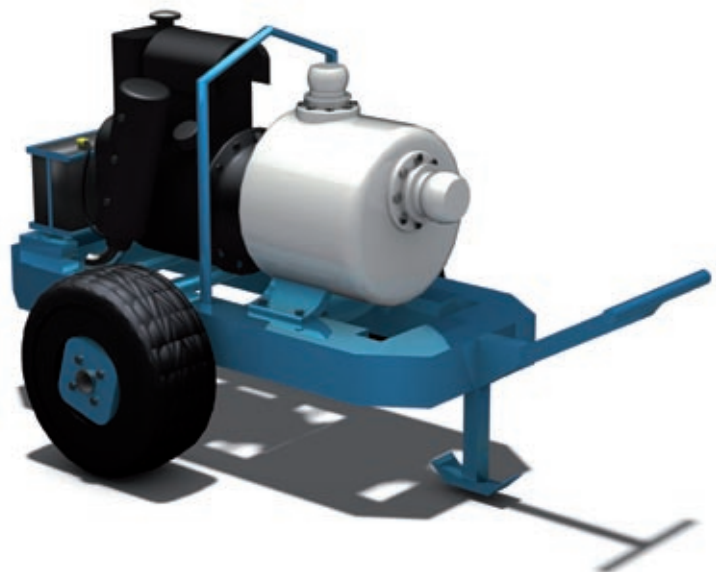


Grout mixing plant EG IP 8.

new products



Injector GP-80.



Centrifugal self-priming pump Delta.

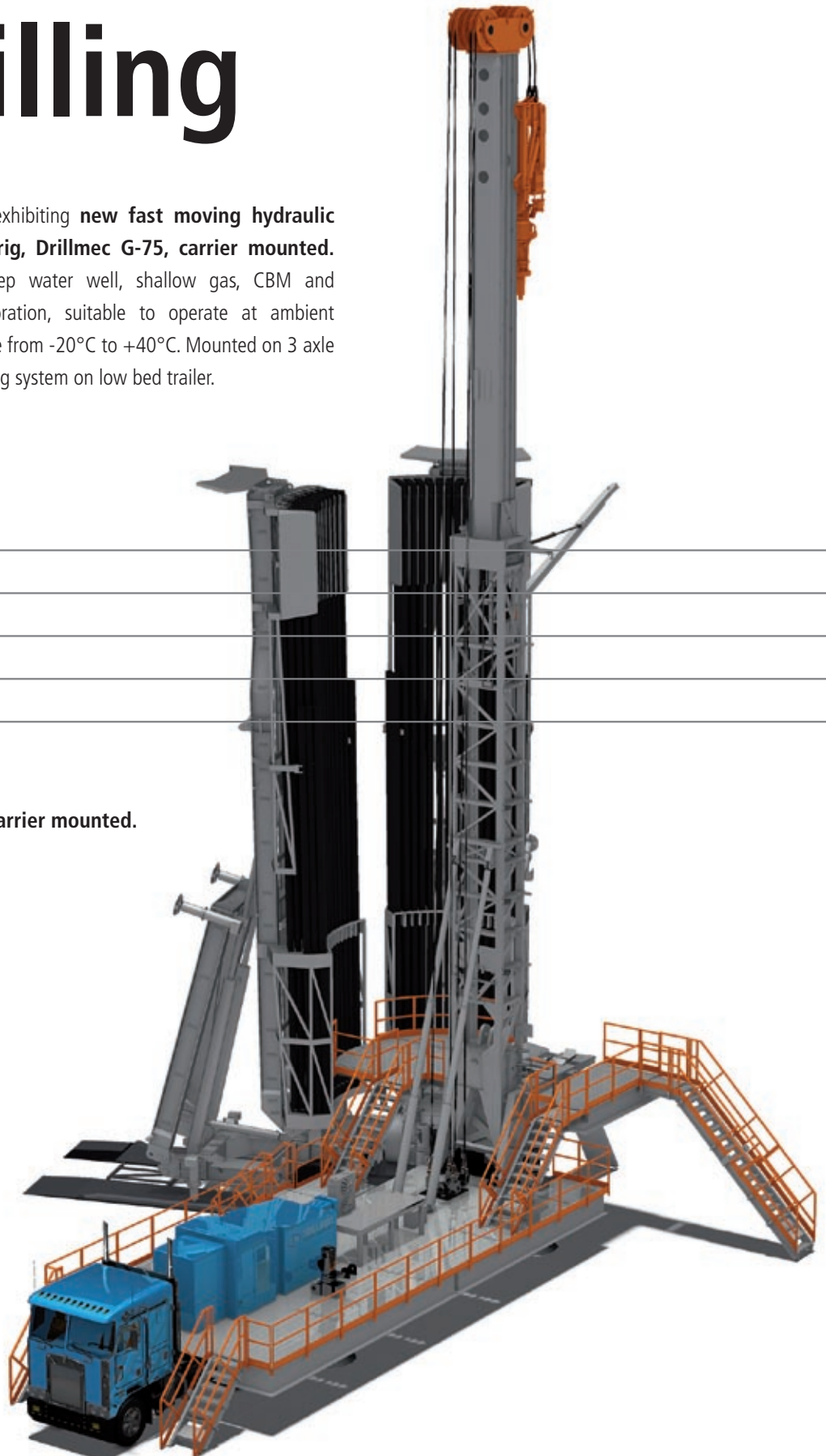
Drilling

Soilmec will be exhibiting **new fast moving hydraulic rotary drilling rig, Drillmec G-75, carrier mounted.** Designed for deep water well, shallow gas, CBM and geothermal exploration, suitable to operate at ambient temperature range from -20°C to +40°C. Mounted on 3 axle carrier, with racking system on low bed trailer.

new products

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Drillmec G-75 carrier mounted.



SR Series



SR-60 LDP

SR-60 LDP (Large diameter piles)
equipped with new Cat engine Tier4.



SR-60 LDP.

products

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SM Series



SM-5G and SM-3 the "small" rigs dedicated to soil investigation works and restricted working area.

SM-3

SM-5G



SM-3 in action.



A new work environment

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The new Soilmec cab for SC cranes and SR drilling rigs features improved comfort and visibility and gets high marks from experienced operators

The new Soilmec cab is the result of an innovative project whose guidelines prioritized enhanced comfort and functionality of the operator's work environment.

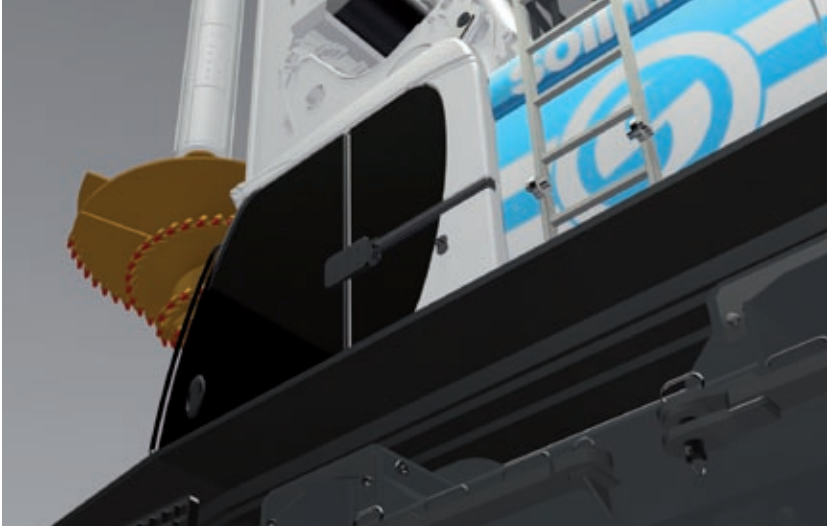
Design of the cab had to satisfy two basic criteria: it had to include a sliding door, as well as have a uniform size regardless of the SC crane or SR drilling rig model the cab would be mounted on.

The sliding door system offers a set of advantages with respect to the hinge system. The sliding feature makes the door easier to open when the machine is operating near obstacles versus the hinge system, which requires a certain radius in order to permit full opening. It also allows the operator to open the door partially, useful, for example, when communicating with other workers on the site. The sliding system also makes opening and closing much easier from inside the cab.

Because the cab dimensions are standardized, the operator can work with the same level of comfort and achieve the same visibility even when switching from one SC or SR machine model to another, a characteristic that has a positive impact on productivity and efficiency.

Another factor taken into consideration during the design phase was to increase the degree of comfort inside the cab, now designed to allow the operator to climb in and out of the cab with greater ease. Increased leg room, even for operators with extra height and build, is another benefit. Other new features include the seat and controls layout of the controls, which minimize fatigue even after particularly long shifts.

Visibility has been improved in all directions, specifically in the lower part, in order to improve control during positioning and the different work phases. The new cabs are also



fitted with a moveable DMS control panel that allows the operator to select the position according to the application to ensure the visual radius of a determined point.

The DMS software has also been developed to guarantee a more efficient management of the controls and to assure greater safety. Upon machine start-up, for each work configuration the DMS monitor displays a page clearly indicating the specific functions of each control. The operator must give confirmation that he has viewed these functions before starting work.

To verify whether the cab modifications constituted actual improvements, Soilmec performed tests using highly skilled and experienced operators, who responded enthusiastically to the new cab in its prototype version and suggested minimal changes that would additionally increase comfort and functionality.

new products



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New SR-90 TTJ Turbo jet Series increases productivity

new technologies

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Soilmec will be exhibiting the new-generation SR-90 in a Turbojet version at Bauma 2013. The hydraulic drilling rig features a newly designed antenna with mast extension able to reach a depth of 32.5 meters, as well as a new CAT Tier4i engine and new cabin with enhanced comfort and more ergonomic controls.

Turbojet is a soil mixing technology developed by Soilmec that allows the construction of 400-1500 mm diameter columns in a wide range of soil types, from low consistency cohesive soil to non-cohesive soil with loose to medium consistency.

The system features a tool that combines the “jet” effect with mechanical mixing, resulting in columns that are not the direct result of the soil composition but are uniform along their total length due to the breakdown action of the blades.

Numerous SR-90 hydraulic drilling rigs, the model replaced by the second-generation model on exhibit at Bauma, were outfitted in a TTJ version (Twin Turbo jet with two tools and two rotaries) and used to complete the largest soil reinforcement project of this type ever undertaken in the U.S. and probably the world. The drilling rigs built 1,500 buttresses along a 9.6 km stretch of the LPV 111 levee in New Orleans for a total of 25,000 columns and over 1,300,000 cubic meters of treated soil.



SR-90 TTJ version.

New SR-100 CAP/CSP Leaders in CAP/CSP technology



new technologies

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Bauma will also give Soilmec the opportunity to present the SR-100 hydraulic drilling rig in the CAP/CSP version. CAP (Cased Auger Pile) and CSP (Cased Secant Pile) technology is designed to construct cased piles with the continuous auger method. The system is ideal for urban sites because it eliminates vibrations and prevents problems to adjacent structures. It also reduces sound emissions and avoids the use of bentonite drilling muds, and as a result impacts positively on the costs and logistics of waste material disposal. The CAP/CSP method is especially effective for constructing secant piles necessary for structural diaphragm walls that must guarantee water tightness.

Now Soilmec, recognized as a leading producer of this technology thanks to the double independent rotary system (one that activates the casing pipe and the other the auger) takes a further step by introducing the patented system EAT (Eccentric Auger Tip). Since the system can dig according to a radius of eccentricity, the excavation diameter can be increased by 40 mm, thereby assuring the same size of the pile outside and inside the pipe.

The system is currently being used on the large construction site in Copenhagen to build the new M3+M4 metro lines, where Trevi is operating eight Soilmec SR-100 and two SR-90 hydraulic drilling rigs.

The machines are tasked with the construction of over 95,000 meters of slurry walls made up of 1 meter diameter piles extending down to a maximum depth of 28 meters, an operation that has also entailed drilling substantial layers of flint.

Soilmec Hydromill sets the new standard for the industry

from the site

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Soilmec's hydromill tried and tested technology has been further refined to offer the most advanced technology available for this type of equipment

The hydromill was first designed in France in the early 70s, then developed over the course of the 80s and 90s to integrate improvements, making this type of equipment an essential tool in ground engineering.

Soilmec brought out its own version of the hydromill starting in 2000, and today the company is regarded as a major player from both a technological and applications standpoint. The Cougar and Tiger hydromills are currently at work in the U.S., China and Denmark, giving proof of their productivity and reliability.

In October 2012 a Tiger SC-200 hydromill with HDD system (Hose Drums Design) designed to reach extreme depths dug a slurry wall down 250 meters. The unprecedented record has permanently changed the application limits for this type of equipment.

The 250-meter depth exceeds by over 100 meters the maximum limit ever attained, marking an achievement as much for the application as the knowledge required to engineer a machine able to excavate to such a depth.

Soilmec's tried and tested technology proved decisive also in extreme conditions. **Soilmec is the only manufacturer to offer a double patented system** that uses the combination of 12 independent flaps (each adjustable in three different positions) and the independent movement of the milling drums **to control the position of the milling module during excavation.**

This accomplishment was also made possible thanks to the **DMS system** (Drilling Mate System, another Soilmec patent) fitted with a triaxial sensor that enables real-time monitoring of all drilling parameters.



The important GeoDrilling International magazine devoted the cover of the March 2013 and an article to the record depth reached by Soilmec.

The engineering expertise behind the design of the hydromill and the 250-meter record also involved an in-depth study of aspects that no other manufacturer had ever tackled before, such as the pressure exerted by the fluids on the various components of the milling module (over 30 bar), or problems regarding the suction of material at depths over 150 meters. These challenges were overcome by implementing specific solutions, subsequently patented, that **will be used for all new Soilmec hydromills, making these machines even more productive and reliable in normal operating conditions.**

New solutions for bentonite mud treatment

Soilmec has continued to innovate also in the field of bentonite mud treatment, an essential process in order to ensure productivity and profitability during the excavation of plastic and structural diaphragm walls.

Thanks to the **SMT-500 desander unit** (with a production of 500 m³ per hour) and **the SDM-35 mud and debris management system** (with a capacity of 240 m³ per hour) Soilmec now offers an advanced, one-of-a-kind solution for bentonite mud treatment.

Designed to take into account the difficult logistical conditions typical of works performed in urban locations, the combined system of the SMT-500 desander unit and the SDM-35 mud treatment system has a vertical design and is very compact in relation to its exceptional production capacity.

The modular system, which facilitates transport and *in situ* assembly, in addition to the structural design which allows direct loading without the need for a wheel loader, translates into logistical advantages and significant cost reductions, in turn impacting positively on the profitability of the work site. **The system is currently in operation in Copenhagen, where Trevi is constructing over 60,000 meters of structural and load bearing diaphragm walls for the new M3 and M4 metro lines.**



from the site

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SMT-500 in Copenhagen (below).



What's new on Soilmec website

Starting from March 2013, some new features were introduced on www.soilmec.it website.

A brand new area in the homepage has been activated, entirely dedicated to videos that show the latest Soilmec news. Starting from the home page it is also possible to browse or download all the latest editions of the Soilmec Journal in digital format. The area dedicated to products has been further expanded, thanks to a greater and more comprehensive range of information, photos and 3D renders of the models. Furthermore, a full graphic restyling, now with more light and airy colors, and a modern font aligned with the look & feel of catalogs and below-the-line materials. We remember our readers that, always from March 2013, it is necessary to register on the site to access all available documentation in PDF format.

corporate

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New Crane SC-100 model

Soilmec will debut at Bauma 2013 with a new model. After SR-70, MS-21 and SR-100 (CSP version) the new SC-100 (crane version) will be available at Soilmec shop in their stand. The new model is already equipped so as to convert the base machine into a hydromill (with SH-30 module) and into a hydraulic rotary (with SA-40 module).

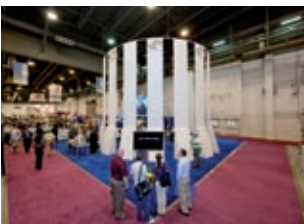
SC-100 Cougar/SH-30 version hydromill, whose very first prototype is going to be presented at Bauma 2013, will be available for sale starting from autumn 2013.



corporate

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OTC 2013-OFFSHORE TECHNOLOGY CONFERENCE Houston (Texas, USA) May 6-9, 2013



The **OTC** (Offshore Technology Conference) is the world's foremost event for the development of offshore resources in the fields of drilling, exploration, production, and environmental protection. OTC is organized and operated exclusively to promote and further the advance of scientific and technical knowledge of offshore resources and environmental matters.

CTT 2013 Moscow (Russia) June 4-8, 2013



CTT is the leading construction industry event in Russia, the CIS and Eastern Europe zone. CTT is a business platform for construction machinery, earth-moving machinery, building material machinery and building site plant, construction equipment and tools, road and railway construction machinery as well as accessories and equipment.

Solution provider

HYDROMILL technology
for diaphragm walls



TIGER

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