

Italian rigs in Scandinavia

With over 300 units delivered to Scandinavia, Comacchio aims to further consolidate its market position with its new multipurpose GEO 501 drilling rig

The population of the Nordic countries totals around 27 million people, who are served by over 16,000 regulated water supplies plus a much larger number of unregulated small ones that serve a vast number of cottages and traditional mountain huts spread over the length and breadth of the region.

Space heating and domestic hot water heating for these single-family buildings is largely provided by low temperature, shallow geothermal energy systems based on ground-source heat pump technology.

In later years, there has been an increase in the market for larger systems too. These are mainly applied for residential multifamily buildings and housing associations and have typically 10-20 boreholes connected to one or several heat pumps.

The geology with hard crystalline rocks that characterises the region is one of the main reasons to allow for this kind of development, supported by efficient drilling technologies.

"Alongside with the necessary expertise, the selection and use of the best available equipment is essential to any efficient drilling operation. Since 1997 Comacchio has worked with our Scandinavian clients to deliver drilling rigs that are tailored to the needs of water well drilling and shallow geothermal drilling in this region," – explains Davide Pegoraro, territory sales manager at Comacchio. "With the introduction of the GEO 501, we are ready to further expand our offering, providing our clients with unprecedented flexibility."

MULTIPURPOSE

The new rig is designed as a multipurpose unit, capable of both vertical and horizontal

drilling using any type of rotary or rotary-percussion methodology.

The vast selection of rotary equipment available includes application-specific solutions that were developed by Comacchio with a focus on DTH drilling. In the typical hard geological formations of the Nordic countries, the GEO 501 can be effectively utilised for DTH drilling down to 300-400m with 4 or 5in hammer.

The working table with double sliding keys equipping the mast has been upgraded to handle casing diameters up to 323mm. The multiple capabilities of the rig are supported by the mast kinematics, incorporating a +/-90-degree mast side slew without any repining of the cylinders.

"One of the objectives that Comacchio has set for this project is that the GEO 501 should support horizontal drilling for utility construction, which has also seen a considerable growth in the last years," says Pegoraro. "The GEO 501 can easily switch from water well drilling to energy drilling, to horizontal drilling. The advanced kinematics of the GEO 501 allows for precise positioning and the robust mast structure is supported by a telescopic mast foot."

The rig design incorporates a heavy-duty oscillating undercarriage, ensuring that the rig conforms to ground irregularities and can tram up to 3.5km/h. Additionally, it can be equipped with a towing winch to tackle difficult access conditions.

The rig incorporates a 100kW Deutz engine, complying with the strictest Stage V standards.

Equipped with a double pipe rack, the rig can accommodate a 400L water tank and 294m of drilling rods with 76mm diameter. The length of the rods can be increased up to 408m by removing the tank. Each of the two pipe racks can be operated



independently via Comacchio's proprietary radio control system that allows controlling all machine functions, from tramping to set-up and drilling.

DTH DRILLING

Further application-specific accessories that provide increased DTH drilling efficiency include Odex cuttings diverter, high-pressure water pump, adjustable dust collector and welder unit/generator.

"All this is packed in a light-weight and small footprint structure that can be transported in one load with its ancillaries and adapts to the restricted spaces typically associated with domestic and small-scale industrial projects that are the core business for many of our clients. These are often short-duration jobs that require reduced rig-down and rig-up time and low mobilisation costs," explains Pegoraro. "The first unit of this series was delivered to our Norwegian client Kaugerud Brønnboring AS with the collaboration of our dealer IRM."

"The first GEO 501 was successfully put into operation in the Buskerud region last summer, despite the outbreak of the COVID pandemic. In fact, in that part of Norway, COVID restrictions have resulted in an increased demand for water and energy access for small houses and cabins." ▶

Comacchio's new GEO 501 rig performing horizontal drilling 12m long with 219mm diameter casing in Langedrag, Tunhovd