PAGANI® AND VANGUARD® UNVEIL FIRST EVER FULLY ELECTRIC, STATIC AND DYNAMIC PENETROMETER

Pagani Geotechnical Equipment has been designing and manufacturing machines and accessories for the geotechnical, geophysical and environmental research sectors since 1978. Passionate about developing industry-leading, multi-geotechnical survey products, the Italian manufacturer has created the TG 63-200 ePlus: an innovative and first-to-market, zero-emissions PLUS electric penetrometer, featuring CAN bus communication protocol for the first time, to help with simple and fast diagnostics on-site.

Briggs & Stratton is a longstanding and trusted partner of Pagani's, in fact all of the company's existing penetrometers are equipped with Briggs & Stratton's commercial engine brand Vanguard. This included the very successful original TG 63-200 model, which has been one of Pagani's bestsellers and is why Pagani chose this model for a range extension and development.

The TG 63-200 ePlus is the very first electric version of this bestseller rig, the TG 63-200. With the help of Briggs & Stratton, Pagani developed the original model to provide an innovative go-to-market penetrometer. By replacing the internal combustion engine with a Vanguard battery-powered electric motor, the TG 63-200 ePlus now features an electronic control unit for managing all machine elements via CAN bus protocol. This includes a load sensing pump and distributors with proportional electro-hydraulic actuators, sensors for monitoring oil pressure, tilt and conditions, display to view machine and test information and a remote control for movement and more thorough geotechnical tests.

Battery development has been central to the creation of the TG 63-200 ePlus and, with Briggs & Stratton's proven product and electrification capabilities, it made sense to incorporate its Vanguard product portfolio to bring the project to life. Key requirements for the battery included high performance and robustness to further improve product performance, autonomy and charging speed. Pagani therefore identified the Vanguard 48V 5kWh fixed battery pack (Fi 5.0) for its initial prototype development of the TG 63-200 ePlus.

Working together, the two companies identified product improvements for end users by using the internal Battery

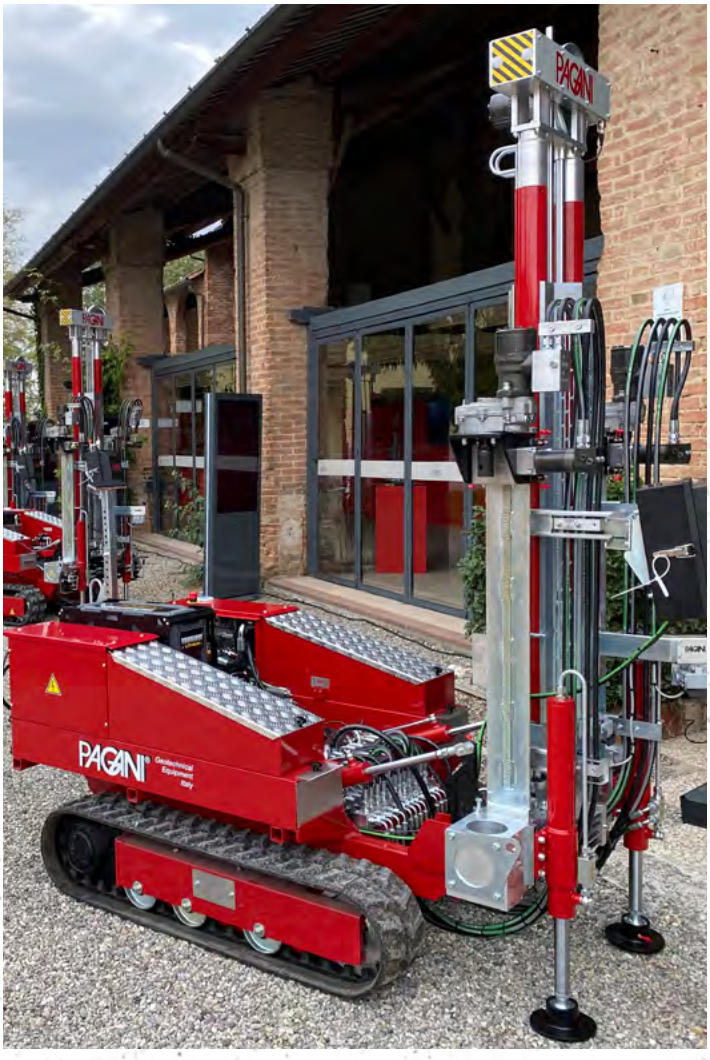
Management System (BMS) to monitor several parameters, including voltage and temperature, throughout the pack to ensure efficient and safe operation. The battery pack has been designed to last for up to 2,000 cycles and does not require scheduled maintenance. Furthermore, all main components are repairable and modules can be replaced instead of having to replace the entire battery.

Powering the battery, the Vanguard 1050W Charger delivers a charging time of less than 5.5 hours. Positioned outside the penetrometer, the charger can be connected to a standard wall outlet (230V AC) and charging can take place while the battery is in use. It also uses the CAN bus communication protocol; the advanced charging algorithms optimise the daily battery capacity and the overall battery life. The battery status can be monitored in real time via an app.

In addition to product enhancement, switching to battery power and electrification has become increasingly important for European manufacturers like Pagani, as the European Union has once again raised its target to reduce greenhouse gas emissions by at least 55% by 2030, to achieve its goal of climate neutrality by 2050. Edoardo Pagani, CEO of Pagani Geotechnical Equipment said, “The transition to this goal represents an urgent challenge for manufacturing across Europe, but it is also an opportunity to build a better future. It is therefore essential that we all do our part. At Pagani Geotechnical Equipment we have wanted to take part in this energy transition for quite some time and, at the end of 2021, we started working on the fully electric TG63-200 ePLUS penetrometer as a top priority, devoting and investing time and resources.”

With the world moving towards more environmentally friendly solutions, a battery-powered motor is a big step in Pagani’s product development programme, as Edoardo Pagani explains, “By developing technologies, such as a fully reliant electrified product range, we are implementing a shift change with commitment to a sustainable future. As we continue to develop the TG 63-200 ePlus model with our partner Briggs & Stratton, we hope to show our dedication to responsible manufacturing and that, as a company, we are willing to push forward with new environmentally sustainable product developments.”

Briggs & Stratton’s Vanguard 48V 5kWh fixed battery pack (Fi 5.0) is ideally suited to industrial applications. Designed



> **“AS WE CONTINUE TO DEVELOP THE TG 63-200 EPLUS MODEL WITH OUR PARTNER BRIGGS & STRATTON, WE HOPE TO SHOW OUR DEDICATION TO RESPONSIBLE MANUFACTURING AND THAT, AS A COMPANY, WE ARE WILLING TO PUSH FORWARD WITH NEW ENVIRONMENTALLY SUSTAINABLE PRODUCT DEVELOPMENTS.”**
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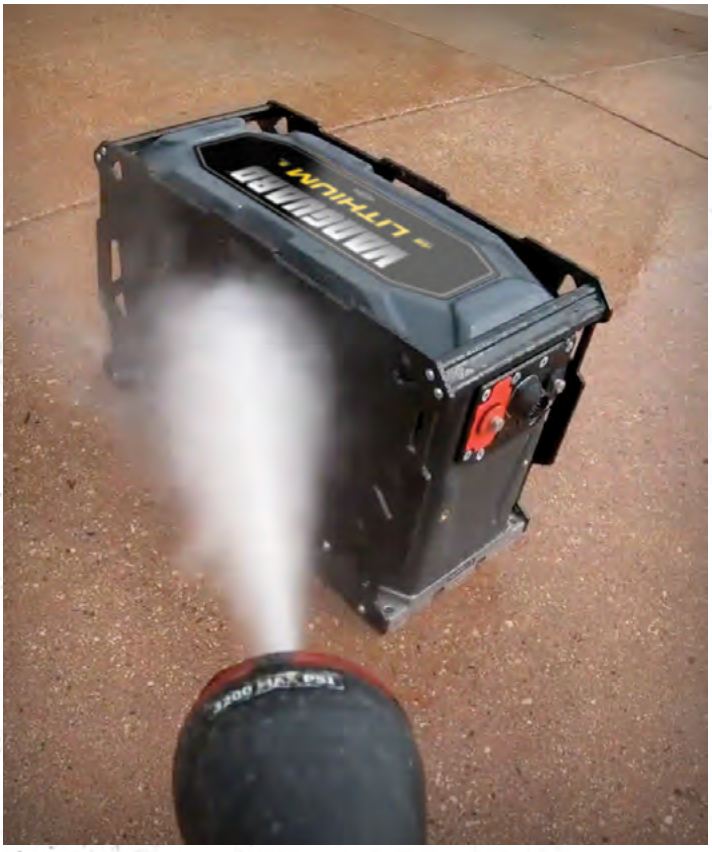


and tested to withstand extreme temperatures, vibration, impact, moisture and dirt, it is IP66 protected and can be pressure washer cleaned after a hard day's work. Featuring common CANbus communication systems (optionally a dual communication via CAN Open for integration with legacy systems), and an independent paralleling capability, it is easy to integrate with a wide range of applications across many product needs and functions.

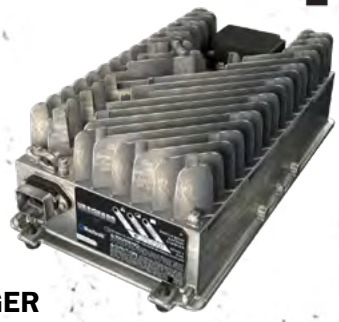
Incorporating an onboard BMS that is responsible for thermal runaway prevention and protection within each pack, plus other safety layers such as wire bonding, physical spacing between the individual cells, 1⁄4 in. aluminium tier plates, and redundant contactors, the Vanguard 48V 5kWh fixed battery pack (Fi 5.0) is engineered for the unexpected and perfect for on-site operation.

Paul Bramhall, Director of Electrification/Rental EMEA at Briggs & Stratton said, "The Vanguard 48V 5kWh fixed battery pack (Fi 5.0) is powerful, functional, and easy to operate for any industrial application. It is all about maximising productivity and improving operational efficiency for users, making it the perfect solution for Pagani."

Since the launch of the initial prototype TG 63-200 ePlus penetrometer in November last year, the product has sparked great interest, particularly amongst customers interested in technological innovations and the environment. Edoardo Pagani explains, "This new prototype is a sign of things to come, as Pagani Geotechnical Equipment looks to make a sustainable shift in its product manufacturing. As a next step we will be looking to implement the Vanguard 7kWh battery pack (Fi 7.0), along with the 3kW charger for an even better performance."

BATTERY

BATTERY MANAGEMENT SYSTEM (BMS)



CHARGER

For more information on Briggs & Stratton's Vanguard power solutions visit https://www.vanguardpower.com

CONTACT US NOW

TO FIND OUT HOW VANGUARD CAN HELP YOU POWER YOUR EQUIPMENT

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