



TECHNOTRADE PARTNERS WITH VANGUARD FOR THE DEVELOPMENT OF AN AUTONOMOUS AGRICULTURAL VEHICLE

THE CUSTOMER

Technotrade partnered with Vanguard Commercial Power, an iconic Briggs & Stratton brand, to provide a power solution for the newly developed Cronos Quadro. The Cronos Quadro is an autonomous agricultural robot developed by Czech startup, Cronos. Technotrade founded Cronos as an independent research and development unit with a mission to change the agricultural industry. This soon led to the development of brilliant machines and robotic solutions for automated farming and grounds maintenance.

THE CHALLENGE

In developing its latest multi-functional autonomous machine that helps farmers increase labor efficiency and save costs, Cronos needed to find a unique power solution that could withstand the demands of everyday farming. Working closely with its power solutions provider, Technotrade, Cronos settled on two Vanguard™ 10kWh* Lithium-Ion Commercial Battery Packs from global power provider Briggs & Stratton. Its rugged design and IP66 rating made it an ideal solution for the winter months and harsh farming environments. When selecting the most

suitable power source, Technotrade was able to use its knowledge from being involved in several other projects as an electrification integrator.

THE SOLUTION

Vanguard's unique team of electrification experts worked closely to support Technotrade and Cronos to ensure the required power output was met for each machine across every terrain. Working alongside its team of developers, Vanguard was able to advise Cronos on the best way to integrate the solution into its design, including how to best house the battery packs for easy troubleshooting access if required.

"When Technotrade approached us to support Cronos during the integration process of our commercial batteries, we knew that they were perfectly suited for Cronos' needs. Vanguard batteries can endure extreme operating conditions, are dust and water-resistant, and can withstand being pressure-washed. They feature an integrated battery management system that is responsible for thermal runaway prevention and protection within each pack by

* Total energy measured using a 0.2C discharge per IEC 61960-3:2017.

monitoring voltage, current, resistance, and temperature. Vanguard batteries communicate with the machine to let it know exactly what's happening as the battery is operating. Another benefit to those working across large farmyards with multiple fields is that they can accurately monitor battery performance levels. The autonomous robot will help farmers adopt new technologies into their working practices as they face farmworker shortage and a general need for workload reduction," added Ladislav Poledna, Business Development Manager, Electrification / Rental at Briggs & Stratton.

With a business goal of moving towards environmentally friendly farming, Cronos' decision to shift to battery power reduces the exposure of harmful exhaust fumes to crops and farmland. Providing quiet and emission-free operation, the Cronos Quadro can be used for specialized tasks such as weeding, precision sowing, soil cultivation, plant spraying, mowing grass, and meadow vegetation. Designed for ease of use, the machine will work autonomously and not require any manual operation once transported to the agricultural site. Built-in wireless connectivity helps to provide the operator with vital information during use, including data on key operating parameters and the real-

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WITH A WIDER FOCUS ON HELPING TO DEVELOP MUCH NEEDED AUTONOMOUS EQUIPMENT FOR THE AGRICULTURAL INDUSTRY, WE WANTED TO PARTNER WITH AN INTERNATIONALLY ACCLAIMED POWER PROVIDER THAT HAS WORLDWIDE COVERAGE. WITH THE EASY INTEGRATION CAPABILITIES OF ITS VANGUARD BATTERY RANGE AND THEIR UNIQUE RUGGEDNESS, THAT MAKES THEM PARTICULARLY ADEPT FOR USE IN THE AGRICULTURAL INDUSTRY, BRIGGS & STRATTON WERE THE IDEAL PARTNER FOR THIS.

Jakub Kejduš
Cronos' Technology Director

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Increased Productivity and Yield resulting from reliability of automated processes



Lower Operation Costs due to saving labor costs and time



Better Efficiency thanks to high precision and accuracy of robotic equipment



Reducing Labor needed for routine tasks & solving the issue of labor shortage



Sustainable Crop Production with electric machines that produce zero emissions



Easier Strategic Planning and fleet management based on the data generated by telematics

time location of the robot. The information can be accessed by farmers remotely with a smartphone device to support troubleshooting and tracking the progress of the machine.

Here are a few additional features of this multi-purpose autonomous agricultural vehicle:

- 4x4 electric drive
- Fully flexible chassis platform
- Can be easily transported to the field using a standard tractor 3-point hitch
- Integrated advanced anti-collision system
- Scalable power output

WHAT'S NEXT?

For the rest of 2023, the Cronos Quadro's autonomous drive and control system is expected to be tested heavily in the fields during the entire crop production cycle. The developers also intend to work with Briggs & Stratton to develop a hybrid alternative to the Cronos Quadro

featuring one of its Vanguard engines. This enables individual customers to have the machine tailored to their unique needs.

Jakub added, "After initial functionality testing which proved to be successful, we are in the process of finalizing our data collection from sensors and cameras in the field as we make final adjustments to the design, drive, and control system. The development of the Cronos Quadro has been an ongoing process for over a year, and we are excited to be entering further stages of development for the robot so we can best support farmers looking to maximize their yields and reduce costs."

For more information on Cronos Quadro visit

<https://cronosmachines.com>

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**



Find out more about Vanguard on: [**www.vanguardpower.com**](http://www.vanguardpower.com)



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