

Drive & Control profile

Bosch Rexroth Helps Longtime Partner Vac-Con Create Advanced Combination Machine

New system puts control back into the hands of the dealers and operators through mobile application technology



Rexroth's axial piston pumps and motors combined with advanced software technology allows Vac-Con to control its Omnibus Precision Power option in a more efficient, reliable and safe manner.

Since 1986, Vac-Con, Inc. (www.vac-con.com, Green Cove Springs, FL) has manufactured more than 7,500 custom-built, truck-mounted machines to serve public and private environmental markets worldwide. As far back as 1992, the company was looking for more efficient ways to drive vacuum systems and, as a result, began partnering with Bosch Rexroth and distributor partner Gulf Controls Company. (www.gulfcontrols.com)

headquartered in Tampa, Florida. Over the next 25 years, the three companies pushed the industry with technological and electronic advancements, leading them to a comprehensive project that focused on advancing Vac-Con's product offering.

The Omnibus Combination Machine

The mainstay of Vac-Con's business has been the combination sewer cleaner market. Available in a variety

Challenge:

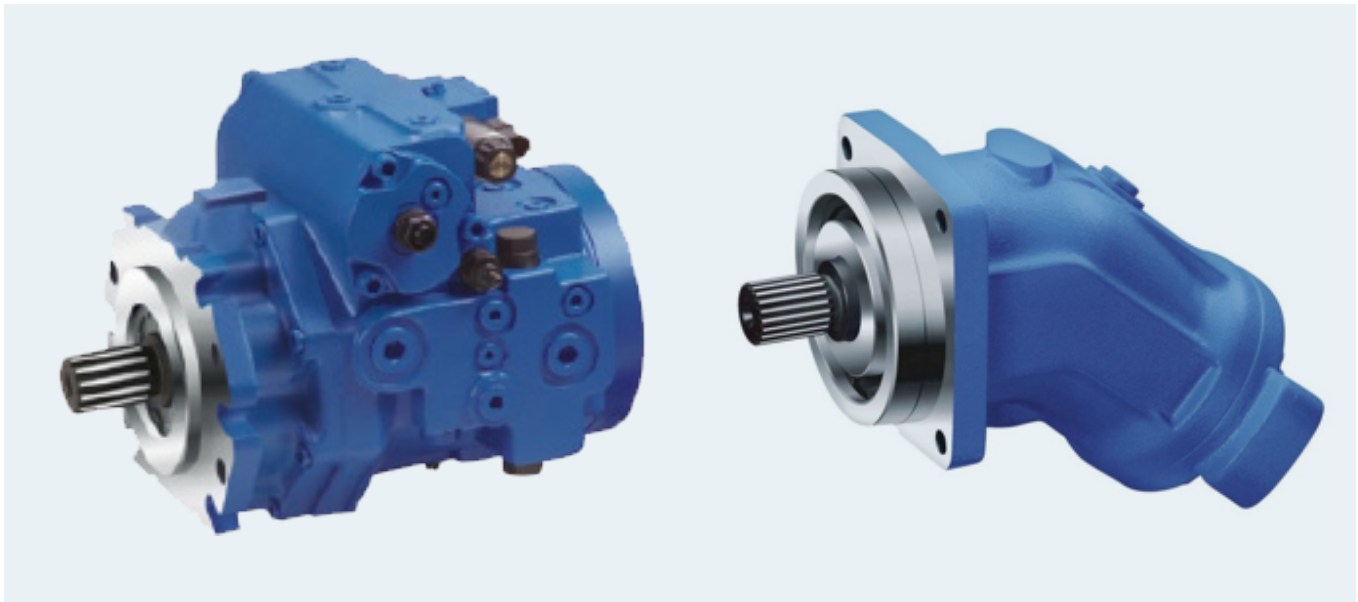
Develop an operating system that would increase operator safety, manufacturing efficiency and machine reliability while maintaining ease of use

Solution:

Use a combination of axial piston pumps and motors with advanced software technology to ensure maximum performance and efficiency

Results:

- Transitioned to fully mobile system that allows remote troubleshooting
- Advanced product support capability
- Increased fuel efficiency



By combining Rexroth components such as the A4VG axial piston hydrostatic pump and A2FM axial piston hydrostatic motor, the new Omnibus combination machine is more efficient while meeting high speed and torque demands.

of sizes in both single and dual engine configurations, the Omnibus Precision Power (OPP) option is available on combination sewer machines.

The machines utilize high pressure water and vacuum for sewer and storm drain cleaning, plus a variety of other applications like hydro excavation, which exposes underground utilities to daylight without risk of damage. The units include high pressure water systems capable of producing flows and pressures from 0-120gpm and 0-3000psi. The vacuum systems are capable of vacuum pressures from 14" to 27" Hg and air flows up to 8000cfm.

Feedback and Goal Setting

Vac-Con, Gulf Controls and Bosch Rexroth set out to find more efficient ways to not only produce the Omnibus option, but to support it in the field. To set Rexroth up for success, Vac-Con worked with the team on a project charter with goals

and deadlines to keep everyone focused on the tasks at hand. In conjunction with the charter, Vac-Con reached out to select team members and choice customers to get their feedback: What did they want changed? What worked well with the existing machine? What didn't?

From Vac-Con's perspective, the ultimate goal was to develop a new system that enhanced performance, operator friendliness and safety, in addition to major efficiencies and machine reliability. The team's code name for the project was "hammer" because the Omnibus Precision Power Control system is "reliable as a hammer" and works every time you use it. All of this feedback provided Rexroth with an outline to use in strategizing the next generation of the Omnibus. And, after extensive research and development, the result was a turn-key product that met all needs.

Must Haves

In talking with team members and customers, Vac-Con, Gulf Controls and Rexroth were able to clearly lay out a few "must haves" for the new machine:

- Design parameters that can be replicated from truck to truck
- No different versions of the same product
- Technology and machine components that are configurable within the system
- Remote troubleshooting ability

In addition to these parameters, Vac-Con wanted customers to be able to stock all of the machine's components at their locations, and be able to have the trucks configured/programmed remotely.



The new Omnibus control system allows end-users and operators to easily configure the system on the manufacturing floor.



Live data allows dealers to make real-time adjustments remotely.

Integrating Rexroth Technology

The new Omnibus combination machine uses a variety of Rexroth components including A4VG axial piston hydrostatic pumps, A2FM axial piston hydrostatic motors, BODAS RC controllers and DI3 monitors. The axial piston units are compact and have high power density, economy and reliability – characteristic advantages for hydrostatic transmissions. These pumps and motors meet high speed and torque demands, as well as optimum efficiency.

Rexroth's BODAS DC controllers and DI3 monitors help create complete intelligent hydraulic solutions through PC software for driving BODAS functions, an integrated simulation environment, signal measurement and testing. The system is extremely user-friendly and allows for remote troubleshooting.

A Complete System

Given the collaboration and feedback of subject matter experts, engineers, sales team members and end-users, the new Omnibus control system is completely configurable on the manufacturing floor and doesn't require any custom programming. This platform allows Vac-Con's dealers to stock key components for the machine and enables them to turn on/off particular options according to individual customer specification.

The new technology is capable of controlling the truck chassis throttle and hydrostatic pump to bring the machine online as economically as possible. The end-user can slowly tune the chassis to throttle up and stroke the hydraulic pump in so it's always at peak torque. Operators have three speeds to choose from. Remarkably, the second speed setting is a huge fuel savings – trucks can run at this setting and do roughly 80 percent of the work. And, because of the system's real-time data capabilities,

the end-user can see exactly how much fuel the truck is consuming based on the fuel setting.

From a troubleshooting perspective, dealers are able to see live data on any truck as it's being used and can make adjustments remotely. The system includes three levels of password protection for the user, dealer and engineer.

Leading the Industry

The new Omnibus combination machine puts control back into the hands of dealers and operators through mobile application technology. The streamlined operating system allows for more efficient manufacturing and operation while maintaining ease of use – positioning Vac-Con as a true leader for municipal, government and utilities industries.

**Do you have an application worthy
of a case study?**

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