SARAKA

CHALLENGE: REDUCE CARBON EMISSIONS OF CONCRETE TRUCKS

Help an ambitious and inovative company with full system solutions for hybrid drive concrete trucks.

SOLUTION: PARKER ELECTRIC MOTOR, IQAN CONTROL SYSTEM AND COMPONENTS

Parker provided consultation from design stage, taking responsibility for calculating the size of the electric motor based on the customer specification and determined what components were needed.

BENEFITS: REDUCED EMISSIONS AND NOISE POLLUTION

The vehicle's on-board combustion engine is able to be shut down when it reaches the construction site and the work is carried out on a quiet electric drive, achieving reduced emissions and complying with site emission and noise requirements.

SARAKA OY

THE NORDICS' LEADING MANUFACTURER OF CONCRETE MIXERS AND PUMPS AND TELESCOPIC DROP CHUTES.

HYBRID POWER HELPS DRIVE DOWN CARBON EMISSIONS FROM CONSTRUCTION VEHICLES

With more than 40 years of experience, Saraka Oy from Ulvila in Finland is the Nordics' leading manufacturer of concrete mixers and pumps and telescopic drop chutes. Saraka's products represent the cutting edge of the industry, due to its focus, from the very beginning, on developing the working methods of concrete professionals and providing the best equipment for them. Its collaboration with Parker has spanned decades.

> "When we set out to design the new Saraka Hybrid concrete truck, we weighed a few different options, but Parker was clearly the best match for our needs.
>
> They were already closely involved at the design phase, taking responsibility for calculating the size of the electric motor based on our specs and for determining what components were needed."
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> Tomi Karilainen, Saraka Oy

Pioneering an electric hybrid drive solution

As a pioneer in its sector, Saraka is also on the leading edge of innovations. For example, its electric hybrid drive superstructure for concrete is powered by a lithium battery system-based hybrid drive. This enables the vehicle's on-board combustion engine to be shut down when it reaches the site and the work is carried out on a quiet electric drive. "Twenty trucks are now in use and our design specifications proved to be accurate and they perform as promised. The battery lasts the whole workday without charging and feedback from the worksites has been extremely positive", says Karilainen.

Close co-operation creates the best solutions for customers

The brand-new product contains Parker's electric motor and IQAN control systems.

"We weighed a few different options, but Parker was clearly the best match for our needs. They were already closely involved at the design phase, taking responsibility for calculating the size of the electric motor based on our specs and determining what components were needed. As a result of the project, the IQAN software was updated. They defined the required components and we provided the necessary technical solutions. Once again, successful collaboration and the merging of our areas of expertise culminated in the best possible end result", says a pleased Karilainen.

Expertise in design and implementation of electrified equipment

Electrification brings its own challenges for manufacturers of mobile machinery. New technology, such as inverters, electric motors, batteries and battery management systems require new kinds of in-house expertise.

In the future, OEMs may need to have the required electrical installation permits in order to carry out independent installation work.

Electrical safety challenges are therefore one clear shift facing manufacturers of mobile machinery.

Another challenge is temperature control in machines.

The ideal operating temperature of the new component, i.e. batteries, is set at an entirely different level compared with traditional diesel engines or hydraulic systems.

The ideal temperature for a battery in its current form and chemical composition is similar to that on a hot summer's day in Finland.

As a result, the waste heat from the battery does not dissipate to the surroundings without a technical solution. The dimensioning of cooling and optimisation of efficiency become an important area in the engineering of hybrid and full electric machines. Also the optimisation of hydraulics becomes a necessity when combustion engines are retired as a source of power, replaced by batteries, inverters and an electric motor. The design principles for these solutions are quite different.

When we imagine a full electric machine of the future or the hybrids during the current transition period, system suppliers play a major role in alleviating the challenges and resources of OEMs. Parker maintains constant R&D efforts to meet these new customer challenges and develop new solutions for electric motor, inverter and cooling needs.

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Tomi Karilainen, Saraka Oy