

HOW TO TAKE A CALCULATED LEAP TO AN ELECTRIFIED SYSTEM WITH ELECTRO-HYDRAULIC PUMPS (EHPs)

5 Key Factors to Consider

Many OEMs are looking to the future of electrification as they look to meet both industry and customer requests for greater efficiencies.

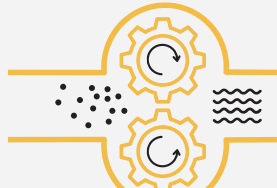
As manufacturers seek to make a shift from internal combustion engines (ICE) to electrification, Parker is helping to create a clear pathway for this energy transition and making hydraulic systems more efficient. Here are five key factors to consider for any OEM looking to make this shift.

1 THE IMPACT OF HIGHER RPMS

Electric motors have much higher RPMs than traditional diesel motors. With more frequent starts and stops, higher acceleration and lower idle speeds, this change must be considered. Increased RPMs may:



Impact overall impact hydraulic system performance



Create possible cavitation concerns

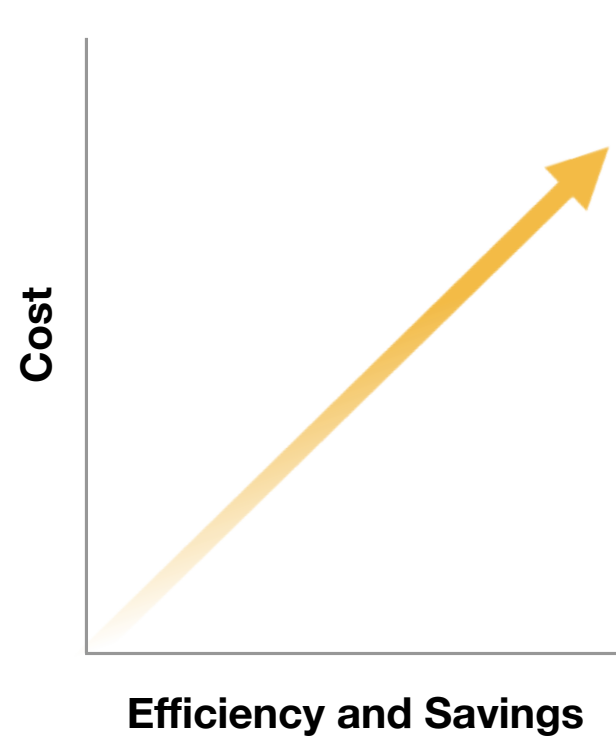


Cause additional longevity and maintenance issues

2 DESIRED OPERATING ENVIRONMENT

Specific applications and operating environments will drive decisions throughout the selection process. Factors like noise, efficiency, cost and long-term savings will all need to be considered.

For example, higher efficiency technologies may cost more; however, the cost will likely be offset by long-term energy savings. In addition, different environments like residential, forestry and mining will all have different requirements in regards to noise levels, downtime, runtime and efficiency.



3 SIZING AND COMPONENT SELECTION

Choosing the right pump, motor and inverter is critical — as each component must work hand-in-hand to ensure proper system performance and longevity. The following factors must be taken into account, in addition to many others:



Pump

Proper flow and pressure requirements



Motor

The correct motor size to generate the required torque at the shaft speed



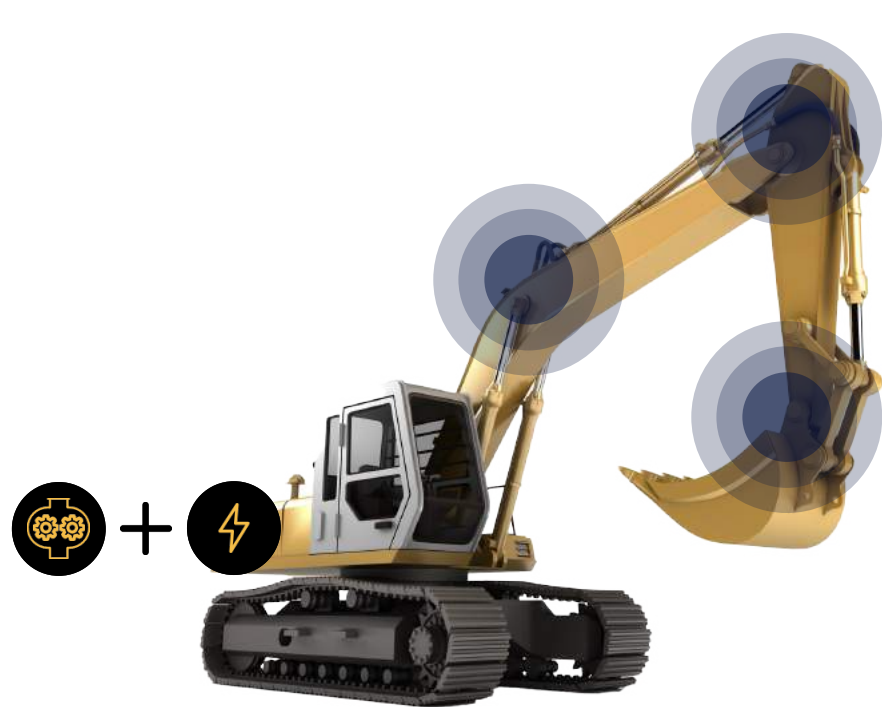
Inverter

Appropriate system voltage and inverter size required to provide correct current for motor demand

4 HYDRAULIC SYSTEM ARCHITECTURE

Depending on the application, a migration to an EHP system can provide a variety of architecture options — from a single pump for all work functions to de-coupling the traction and work circuit, to a fully decentralized system with multiple pumps and EHPs. Depending on the application, unique architecture types can drive better energy input, more efficient outputs, greater control and fewer losses across the entire system.

Electric Centralized

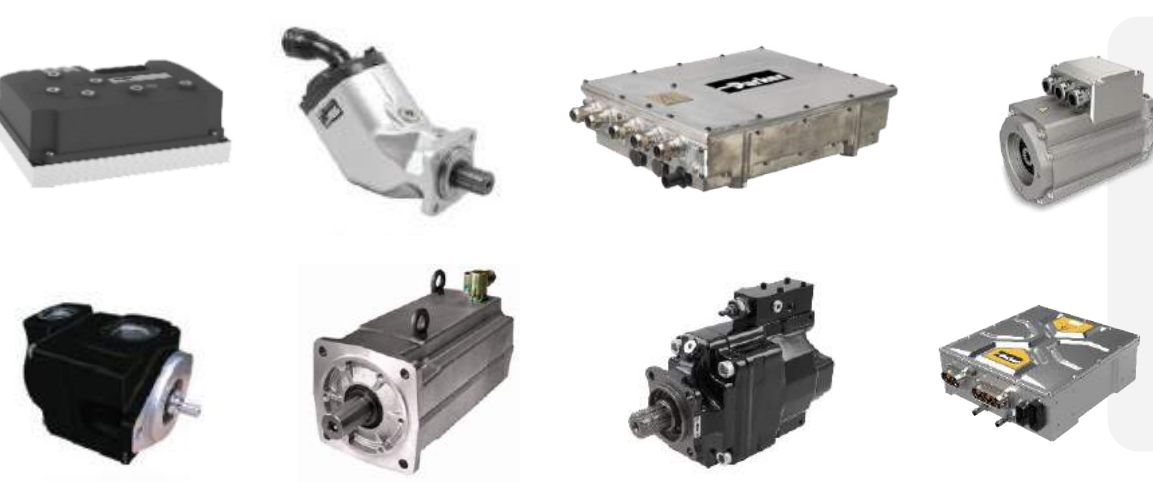


Decentralized



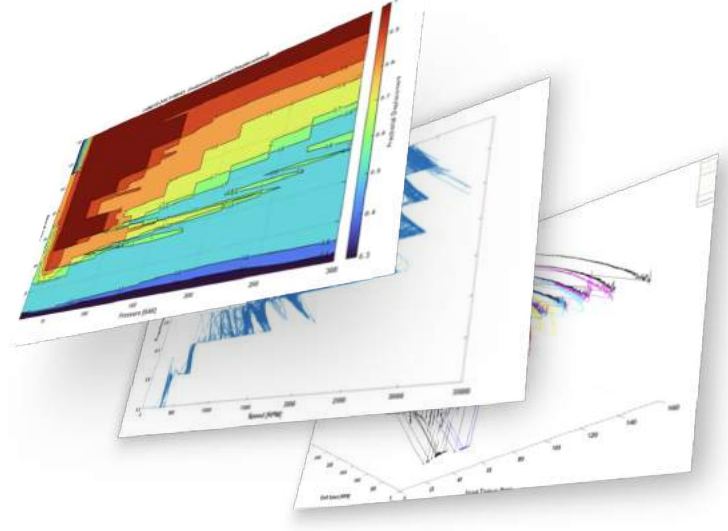
5 ALIGNING WITH THE RIGHT PARTNER

One of the most critical factors to consider when making a shift from internal combustion to an electrified system with electro-hydraulic pumps is choosing the right partner. Parker stands ready to support our OEMs with:



A broad **range of products** in this space — from electric motors, to inverters, to a wide range of various pump technologies to choose from.

A **dedicated testing lab** that can put each component through a wide range of real-world scenarios, testing a wide variety of critical success factors.



Tools and software to help optimize selections to create models for combined ePump efficiency maps, optimized displacement look-up tables, sample operational parameter maps and more.



While these five factors aren't a comprehensive list, it is clear that making the switch from an ICE to an electrified system requires a thorough, thoughtful and deliberate approach. Parker is here to help create a clear pathway to a smooth energy transition for our OEM partners.

For more information, check out: discover.parker.com/electrified