

# Electrospeed Advantage variable speed drive

Increase ESP uptime and reliability with intelligent production software and real-time torque command

The Baker Hughes **Electrospeed Advantage™ variable speed drive (VSD)** with advanced production software increases the uptime and reliability of your electrical submersible pumping (ESP) system.

The Advantage VSD's control system software helps reduce power and downtime costs while optimizing production. Our engineers designed this VSD to solve the most common ESP problems you experience daily: gas locking, difficulty starting, power consumption, and power sags.

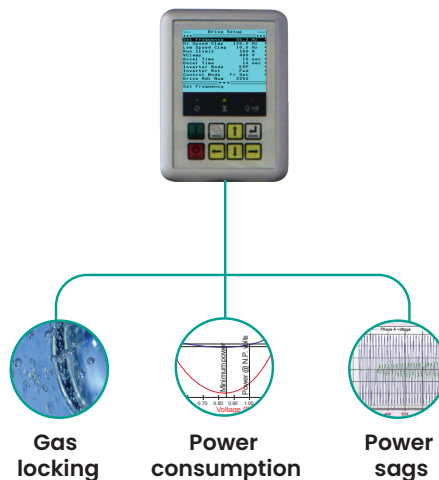
Backed by 30 years of VSD innovation for the oil and gas industry, the Electrospeed Advantage drive is offered as part of the next generation of ESP control products.

The Advantage drive features Real-Time Torque Command (RTTC), which delivers the exact amount of torque that the pumping load requires at any given instant. With torque being calculated in real time, this allows for precise control and protection in the presence of varying loads. With the capability to load modular, built-for-purpose production-assisting software, the Advantage VSD will improve the performance of your ESP system. Built based on the effective foundation of the Electrospeed 3, we offer a complete control system to

optimize your ESP operations and boost system reliability.

The Electrospeed Advantage VSD offers plug-and-play compatibility with our downhole sensors. This enables a holistic view of both the downhole and surface conditions.

Our Baker Hughes **ProductionLink™ integrated production optimization platform** is seamless with the Advantage drive. It connects with the ProductionLink platform to deliver data from the well site while ProductionLink applications turn this data into a decision-making tool in your office.



## Features and benefits

- Standard back spin detection
  - Continual backspin detection to assure reliable auto restart
- Advanced production software
  - Reduces gas lock and pump off
- External USB/Ethernet ports
  - Allows safe software updates and data downloads
- Improved filter for Filtered Pulse Width Modulated (FPWM™) output
  - Increases uptime
- TUV-certified NEMA 4
  - Third-party certified for environmental and safety assurance

## All the time-tested features of the Electrospeed 3 such as:

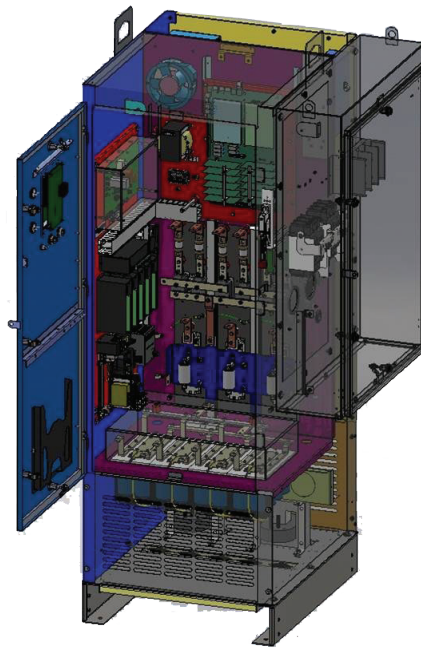
- MaxStart™ software for hard start applications
  - Superior starting characteristics in harsh downhole environments
- MaxPoint™ software for frequency sweep capabilities
  - Ensures minimal reservoir shock in startup and rate change events
- Either FPWM or ESP output
  - FPWM delivers a near-perfect sine wave reducing heat
  - System can run in proven ESP (6-step) output

Finally, our intelligent production software within the Advantage VSD offers specific solutions to reoccurring ESP problems:

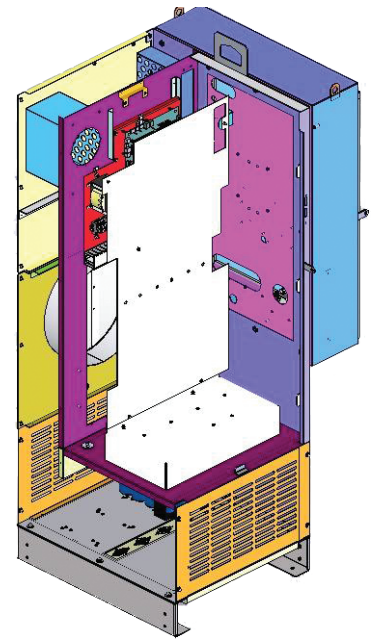
- **Advanced production software\*:**  
The Advantage VSD has a library of tools that can mitigate and clear gas locking, manage draw down for minimal formation face damage, or maintain production through long duration gas slugs.
- **Real-time cable compensation**  
calculates the appropriate surface voltage (at the output of the VSD) based on changing loads, dynamically. This assures that the proper motor voltage is being applied at all times for most efficient operation.
- **Back spin detection and restart without a separate module:** By accurately monitoring the torque of the ESP system, the Advantage VSD can sense a backspinning pump and restart the system when torque levels are safe. This gets wells online faster, increasing production.
- **Power monitoring:** The Advantage VSD now includes, with optional current transformers (CT's) and potential transformers (PT's), power monitoring functions such as instantaneous kW, power factor, efficiency, and kW-hours, helping the user to monitor the energy used in producing fluid to optimize their expenses.

Contact your Baker Hughes representative to find out how the Electrospeed Advantage variable speed drive can increase uptime and reliability in your ESP system.

Specifications	
<b>Input/output voltage</b>	380 and 480 V
<b>Input configuration</b>	6, 12 and 24 pulse
<b>I/O modules</b>	1 to 3
<b>Output waveforms</b>	6-step, Hybrid PWM, PWM and FPWM (sine wave Filtered PWM)
<b>Indicator lights</b>	Optional run and shutdown
<b>Auxiliary power</b>	115 V
<b>Output current</b>	79 to 1203 A
<b>Output power</b>	66 to 1000 kVA
<b>Output frequency</b>	10 to 120 Hz
<b>Input frequency</b>	50 to 60 Hz
<b>Efficiency</b>	≥98% @ rated load
<b>TUV Certifications</b>	UL, CE and CSA
<b>Enclosures</b>	NEMA 4
<b>Arctic/Cold weather package</b>	Optional (CE)
<b>Safety shielding</b>	Standard
<b>Temperature rating</b>	-40°F to 131°F (-40°C to 55°C)



Redesigned layout and relocated input breaker\*\* for easier servicing and enhanced safety.



Complete internal, clear shielding to protect the user during troubleshooting. Ports for electrical probes allow for safe testing.

\* Advanced production software completes the field qualification process.

\*\* Not available on all models.