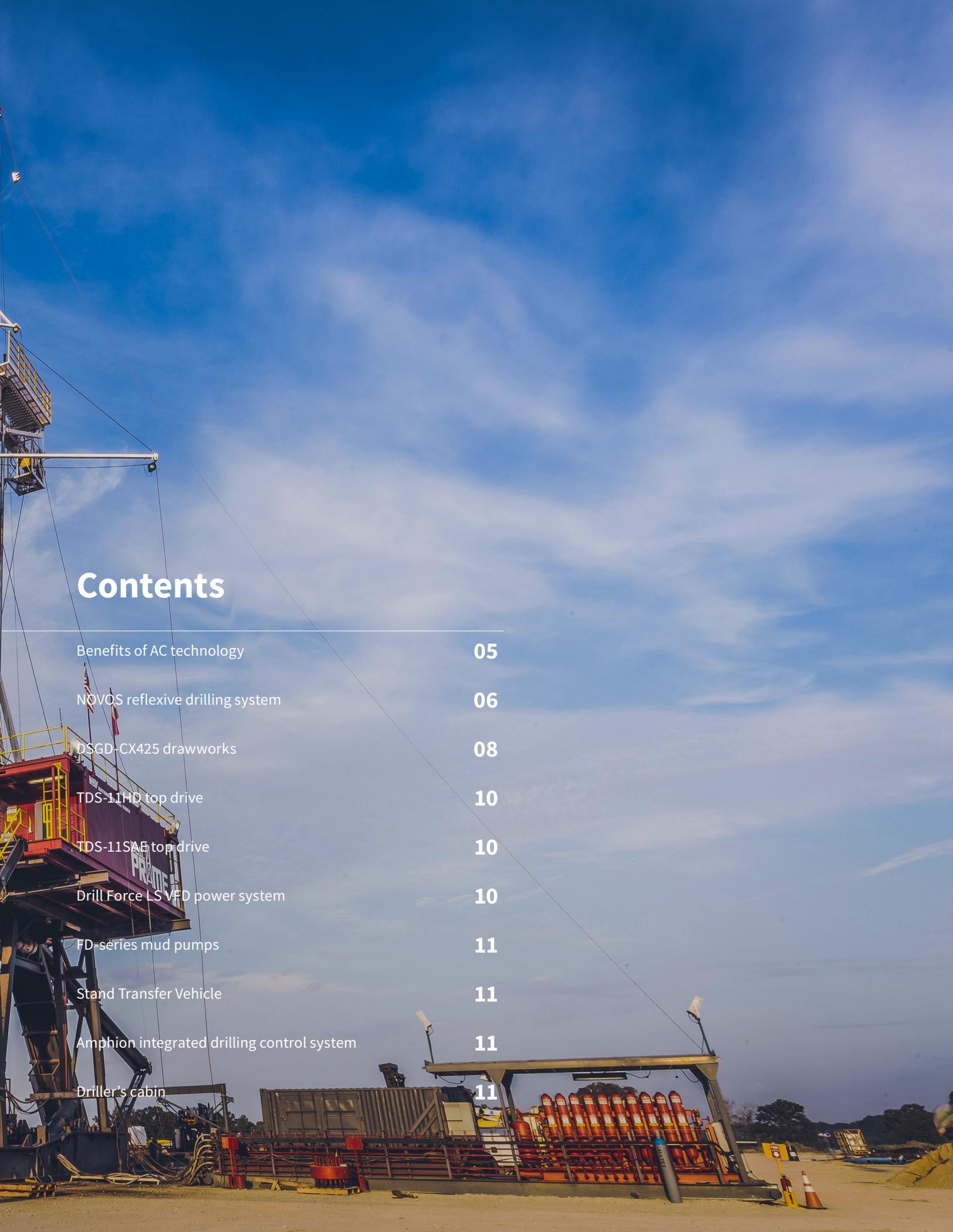


NOVOS™ enabled

# Land Rig Upgrades DC to AC Conversion

**NOV** Rig  
Technologies





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# Convert your existing rig to a super-spec AC drilling rig

A number of existing SCR rigs do not meet the needs of today's more challenging drilling applications. Converting these rigs to AC via our comprehensive equipment and technology upgrades differentiates your fleet, allowing you to better compete for the most desired contracts. As the most sought-after rigs in the industry, super-spec rigs truly stand out in a crowded marketplace.

## Benefits of AC technology

Older rigs often don't have the capability to handle the oilfield's advances in technology, including drilling automation and digital control systems. Additionally, they often lack the equipment necessary for service in today's drilling environments. Upgrading your existing assets immediately catapults your rig to be a top-tier competitor—adding the capability of our NOVOS™ reflexive drilling system, for example, means you're equipped to automate processes and integrate drilling performance apps into your operations.

We develop customized, hybrid solutions that bring together the best of our equipment and technology in a way that makes sense for you. With a DC-to-AC conversion, people on the rig become safer, and the crew gains better control of equipment and rig operations. NOVOS enables continuous, automated parameter monitoring, meaning your driller can consistently drill at a higher ROP with better WOB control, even in extended horizontal sections. The Amphion™ integrated drilling control system brings everything together in an intuitive rig floor command center, unifying interactive controls.





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## NOVOS reflexive drilling system

NOVOS is the industry's only reflexive drilling system, automating repetitive drilling activities, benefiting contractors by allowing drillers to focus on consistent process execution and safety, and benefiting operators by optimizing drilling programs. Our open application platform provides custom apps to help configure NOVOS specifically for your crew and processes. NOVOS is easily scalable and can augment existing people and processes for greater control, consistency, and enhanced performance, or expand all the way to full closed-loop automation.



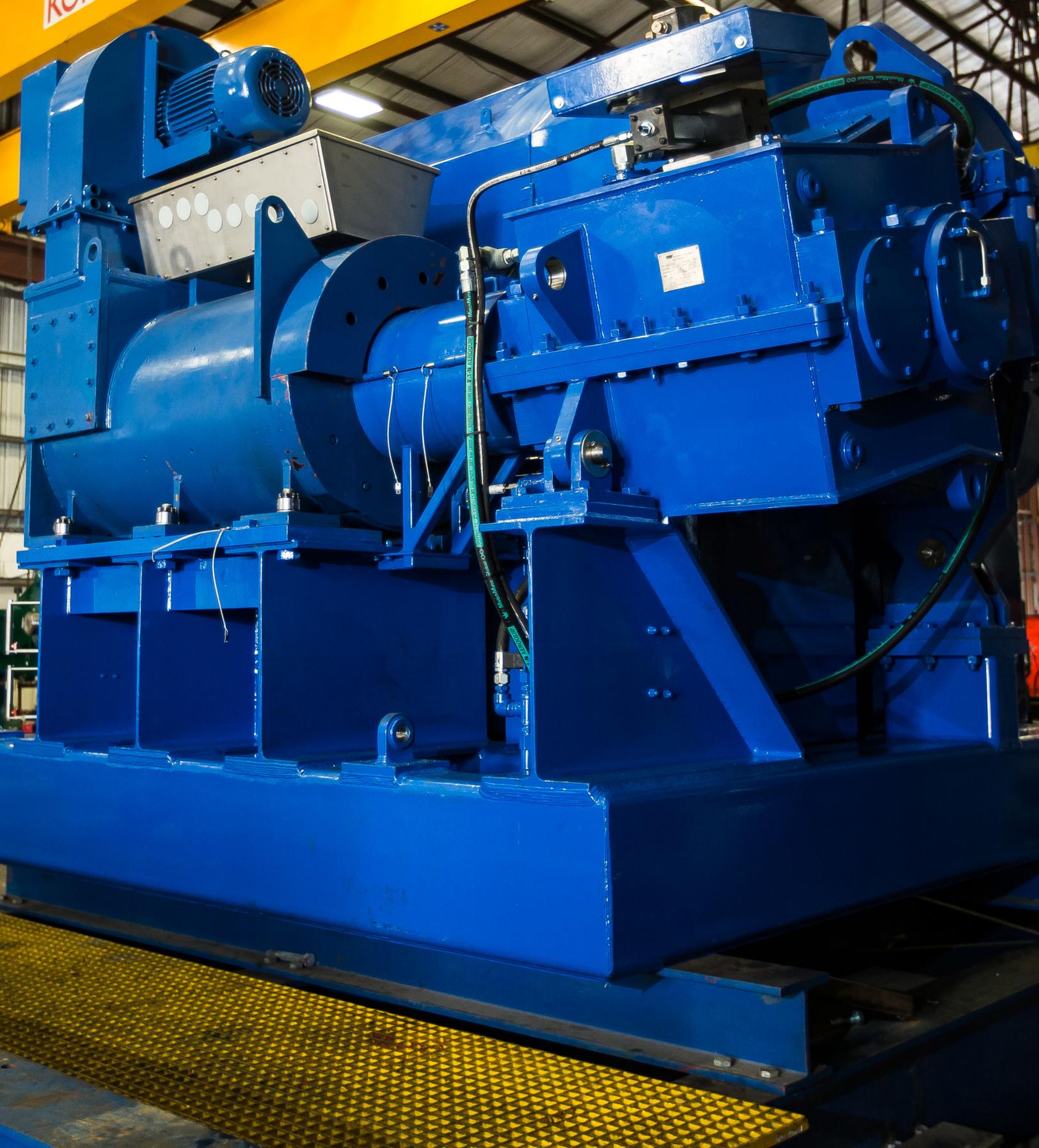
## DSGD-CX425 drawworks

Weighing in at approximately 61,000 lbs, the DSGD-CX425 drawworks' flexible, modular design allows a wider range of drill-floor configurations.

Ease of maintenance is improved with the addition of accessible covers and guards, and operational safety is increased via a braking system with redundant calipers and discs that provide greater misalignment tolerance.

Performance has also been significantly enhanced on the DSGD-CX425. The new drawworks offers 425 tons of hookload capacity on 10 lines and operates at 2,000 continuous horsepower. A new two-speed, low-inertia gearbox provides improved hoisting speed and hookload hoisting capabilities, while the 250-ton high gear capacity enables higher block speeds.

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### **TDS-11HD top drive**

The TDS-11HD provides up to 45% more power and torque, allowing you to drill wells beyond the technical limits of the standard top drive. Two 600-horsepower induction motors drive significantly more torque, while a 500-ton main thrust bearing means you can handle heavier hook loads. Combined, these benefits mean you can drill faster and deeper, both vertically and horizontally, to reach your payzone in even the most challenging formation. NOVOS-enabled, the TDS-11HD also works with drilling performance software, like our SoftSpeed™ II stick/slip mitigation system.

### **TDS-11SAE top drive**

The TDS-11SAE is an aftermarket upgrade that can be retrofitted to your TDS-11SA to boost the horsepower from 800 to 1,200. Combining two new induction motors with updated gear box internals, the upgrade provides you with a cost-effective, OEM-engineered solution to increase the performance of one of your most critical pieces of drilling equipment. We perform the upgrade at an NOV shop during standard overhaul services, minimizing your downtime and ensuring you get our expertise.



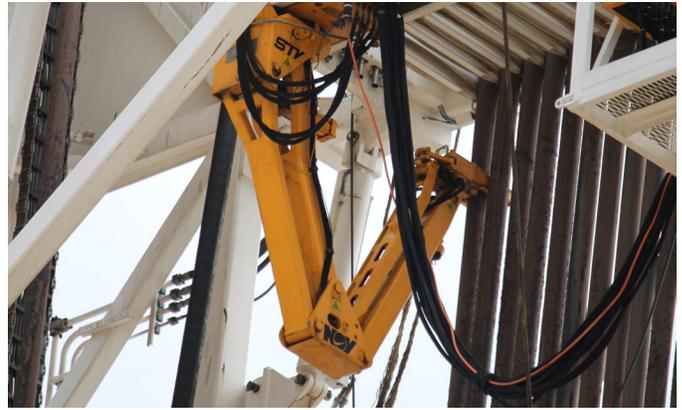
### **Drill Force LS VFD power system**

Our DrillForce™ LS variable frequency drive (VFD) is a robust, highly configurable system for powering your equipment. We've designed the DrillForce VFD to work in the most demanding applications to keep your drilling machinery functioning with maximum uptime.



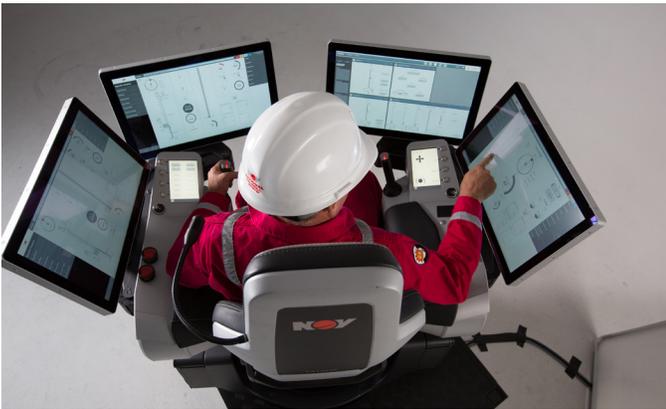
### FD-series mud pumps

Our FD-series mud pumps are adaptable and ready for conversion from 5,000 to 7,500 psi, providing you the added pressure you need for longer, deeper laterals. A third mud pump means improved high-pressure mud capacity and hole cleaning capability, increased uptime, and streamlined maintenance schedules.



### Stand Transfer Vehicle

Our Stand Transfer Vehicle (STV™) is a technology upgrade that removes the derrickman from the mast. The STV is designed for use with most double and triple mast applications, integrating into the existing fingerboard footprint with a minimal weight increase. A compact scissor-arm system fits between the setback and reaches well center and all slots in the fingerboard. The STV is suitable for most modern 1,000- to 3,000-horsepower land rig masts.



### Amphion integrated drilling control system

Our Amphion control system is a high-availability integrated rig control system for managing, controlling, and monitoring rig floor equipment. Amphion has interactive controls, displaying color-graphic data for the user on the touchscreens integrated into the operator workstation. This allows the driller, assistant driller, or pipehandler to supervise and control all drilling-related functions. Amphion is a NOVOS-enabled system, meaning process automation can be integrated to allow operators to focus more on drilling, tripping, and stand-building processes while automating other repetitive, manual functions.



### Driller's cabin

We replace your driller's cabin to make sure your personnel have a comfortable, temperature-controlled, ergonomic environment. Having a high-quality driller's cabin protects your people from dropped objects, drill pipe and equipment, weather conditions, excessive noise on the drill floor, and chemical hazards. The cabin features an optimized layout, allowing the driller to easily supervise rig floor personnel and equipment while also providing additional space for third-party personnel. Rig-up and rig-down with our design is quick and easy.

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**Corporate Headquarters**  
7909 Parkwood Circle Drive  
Houston, Texas 77036  
USA

**Rig Technologies Headquarters**  
10353 Richmond Avenue  
Houston, Texas 77042  
USA