AFGlobal

DURASTIM® HYDRAULIC FRACTURING PUMP

A Revolutionary Design for Continuous Duty Hydraulic Fracturing

The challenges of executing multi-well pad completions with triplex and quintuplex pumps have come to an end with a fundamental advance in pump technology designed specifically for continuous duty hydraulic fracturing.

AFGlobal's revolutionary DuraStim® 6,000 HP hydraulic fracturing pump is a far-reaching change in pump design and performance that:

- Dramatically lowers the cost of ownership
- Greatly improves operational performance
- Creates many new safety and environmental advantages

The *DuraStim* technology redefines the frac pump with a broad set of patents and innovations. The results are game changing from every perspective:

- It is a fully automated, electric long stroke (48-in.) pump, featuring low frequency (~20 cycles per minute), and eliminates high cycle rates that quickly destroy the fluid ends of conventional plunger pumps
- It provides more than twice the horsepower of a conventional pump unit in the same footprint
- Its electric motor prime mover eliminates the burden of Tier 4 diesel emission standards, and greatly reduces noise pollution

A Revolution in Pump Technology

The long stroke, low frequency *DuraStim* pump is comprised of six individual pump units and fluid ends driven by a constant speed 6,600 VAC motor and four hydraulic rotary pumps. The design is enabled by computerized synchronization, control, and automation that closely orchestrates the pump's operation and response.

The *DuraStim* pump is the industry's first variable displacement frac pump. Its pump rate is determined hydraulically, in contrast with conventional fracturing pumps where engine speed and gear ratio determine rate.

Continuous Duty Solutions

The *DuraStim* pump is built for the extreme demands of long duration, high pressure hydraulic fracturing. Durability and reliability are keys to performance on the pad, and to a much lower cost of ownership.

Durability – Long stroke, low frequency hydraulic operation saves fluid ends from damaging high cycle rates. Fast ramp up to target rates and "soft" pump rate changes further improve the life of fluid ends. The resulting increase in durability is a step change in achieving longer service life and lower maintenance costs.

Reliability – Continuous duty pumping is reinforced at multiple levels. Field failures are reduced with Cloud-enabled predictive maintenance, while built-in diagnostics simplify troubleshooting. The *DuraStim* system stays on line with six discrete pump units that can be individually disabled while the rest are kept running. Its individual fluid ends are replaced as needed, while quick-change valve cartridges expedite routine maintenance.

Power Solutions

The *DuraStim* pump's prime mover is a constant-speed 6,600 VAC electric drive motor. A direct drive turbine motor is under development. Both are enabled and optimized by the pump's unique hydraulic operation, and yield many benefits for multi-well pad operations.

Eliminate Tier 4 Concerns – The zero emission electric motor eliminates Tier 4 diesel emission requirements, along with the costs, complexity, and uncertainty.

More Horsepower, Same Footprint – With twice the horsepower of a conventional pump unit, the 6,000 HP *DuraStim* pump occupies the same 3-axle trailer footprint. As a result, the pump:

- Reduces size and complexity of the frac spread
- Decreases high-pressure iron use, resulting in lower costs, faster set up and breakout, and greater safety
- Minimizes total pad size
- Simplifies logistics and reduces general site congestion

Full flow rate – Corner horsepower constraints are eliminated by the 6,000 HP, long stroke pump. Instead of a significant drop in flow rate as high treating pressure is reached, The *DuraStim* pump achieves full flow rates across the pressure range of the fluid ends.

No VFD – The constant-speed prime mover eliminates the cost, size, and complexity of a variable frequency drive to control engine speed.

Environmental Solutions

The *DuraStim* pump enhances environmental performance in many ways.

Reduced pollution – The 6,600 VAC electric drive motor has zero emissions, and produces much less noise than a conventional diesel-powered spread.

Lower impact – Fewer pumps to do the job reduces pad size and lessens vehicle traffic.

Clean operation – The pump uses environmentally inert hydraulic oil.

Contact your local AFGlobal Pressure Pumping Technologies representative to discuss how our revolutionary DuraStim® pumps and other superior quality frac fleet components can reduced downtime and increase efficiency on your next fracturing project.

For more information, contact us at
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