Schlumberger

Hornet

Skid-mounted gravel-pack blender

APPLICATIONS

- Blending and pumping of slurried gravel-pack fluids
- Real-time integrated monitoring and control of gravel-pack treatments

BENEFITS

- Minimizes risk of job failure through precise control of proppant concentration

FEATURES

- Improved proppant delivery accuracy because of precise control of proppant concentration
- Small surface footprint that can fit in tight rig space
- Improved job efficiency through remote-control operations
- Precise control of the solid/liquid ratio at design values
- Hydraulic knife gate with trapezoidal sand-metering orifice
- Loss-in-weight measurement system for on-demand sand concentration verification
- Det Norske Veritas (DNV) 2-7-3–certified lifting and crash frame structure
- Operator touchscreen control panel
- Optional installation of one liquid additive module or one dry additive feeder
- Programmable logic controller (PLC)-based electronics
- Dedicated recirculation line for brine-based slurries
- Programmable optimum density (POD) blender mechanical architecture for reliability and servicing
- Onboard hydraulic and pneumatic power

The Hornet* blender is a skid-mounted unit designed for continuous mixing of gravel-pack slurry in offshore environments. The blender precisely controls sand concentrations, even at low pump rates and low solid-to-liquid ratios. This cost-effective unit is well suited for gravel-packing and high-rate water-packing operations. It can be manually operated if necessary.

The Hornet blender features a modular design consisting of three smaller skid modules (mixer, control system, and engine pack) mounted to a skid-base frame along with process piping. A removable lifting frame also serves as a crash protection frame that mounts over the skid module and base frame.

A wet manifold diesel engine rated to 325 hp directly drives the mixer. The mixer uses an automatically controlled, gravity-fed, trapezoidal gate and a plumbing configuration that allows the unit to operate in continuous recirculation mode through the suction header of a triplex pump and then back to the mixer. This process keeps sand suspended in brine-based fluids.

The standard unit comes without peripheral devices such as dry additive feeder or liquid additive system, but options allow one of each to be installed and a second offboard liquid additive skid to be used.

The Hornet blender runs in fully automated mode, with set points received from the operator or from SandCAT* sand control computer-aided treatment acquisition system. The on-board loss-in-weight measurement system allows operators to perform periodic checks of sand concentration during a job. It also allows adjustments to be made to the baseline sand calibration information stored in the system electronics. This information is used to fine-tune metering performance and to account for possible discrepancies in sand flow due to humidity and other factors.

Hornet skid-mounted blender for use with slurried gravel-pack fluids.

Hornet

Blender Specifications	
Engine	Caterpillar® C9 wet manifold diesel engine
Power, hp	325 at 2,200 rpm; 280 at 1,500 rpm
Max. torque, lbf-ft at 1,450 rpm	988
Cooling	LYM Mesabi® radiator package with integrated charge air cooler, hydraulic oil cooler, engine system cooler, and blender gearbox lubricant cooler
Hydraulics	Power-take-off (PTO)-driven pressure-compensated pump at 1,100 psi and 40 galUS/min max. to power the following systems: • sand metering gate • sand silo cutoff gate • dry additive feeder (optional) • up to two liquid additive systems (optional)
Drive train	Spicer® 1810 series driveline and universal joints, manual clutch
Length, in	225
Width, in	66
Height, in	103
Max. weight (approximate), lbm	20,000 (includes weight of system operational fluids and spillage in spill pans)
Mixer	Patented Schlumberger vortex mixer
Optional additive systems	One onboard dry additive feeder One onboard liquid additive skid One offboard liquid additive skid
Operating temperature range, degF [degC]	32 to 120 [0 to 50]
Max. working sand, ppa	6

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