

StimCommander Process Trailer

Automated blender and hydration unit

APPLICATIONS

- Hydraulic fracturing in unconventional and conventional formations
- Single- and multiwell pad
- Vertical and horizontal gas and oil wells

BENEFITS

- Reduces footprint by coupling equipment and inventory
- Provides a comprehensive inventory management
- Lowers HSE risks due to automated process delivery
- Maximizes equipment reliability with prognostic health monitoring to enable proactive failure prevention
- Sends real-time confirmation that job is run as designed

FEATURES

- Fully integrated power-generation unit and trailer-mounted fracture stimulation blender and continuous mixer
- Ability to blend and pump up to 120 bbl/min [19 m³/min] of fracturing slurry
- Automated control system using the command and control cabin software and communication with the FracCAT* fracturing computer-aided treatment system
- Dry polymer powder storage
- Mixing system to produce a precise gel concentration
- Eight liquid additive systems, two dry additive systems, and one gel delivery and mixing system
- Two independent, redundant proppant blending systems

The StimCommander Process Trailer* automated blender and hydration unit is a dual-function trailer that is both a hydration unit that mixes dry polymer powder (such as guar) with water to form an aqueous gel and a programmable optimal density blender that blends and pumps up to 120 bbl/min [19.2 m³/min] of fracturing slurry or up to 60 bbl/min [9.6 m³/min] with full redundancy. This dual-function trailer reduces footprint by eliminating the need for additional equipment on location. The unit's computers precisely control the solid-to-liquid ratio of proppant and powder, and the liquid-to-liquid ratio of liquid additives at design values in either ramp or stair-step mode. The system runs in a fully automated mode with set points received from the command and control cabin software.



StimCommander Process Trailer unit.

In the hydration function of the unit, powder is held in a bin equipped with load cells for more accurate inventory management. A feeder below the bin meters powder into a mixer that blends the powder with water. This mixture flows into a series of four hydration tanks to ensure the fluid is uniformly hydrated. The unit can continuously mix highly concentrated gel at rates up to 27 bbl/min [4.3 m³/min].

In the blender section of the unit, mixing is done with two independent, fully redundant 60-bbl/min [9.6-m³/min] vortex mixers powered by two electric motors. The proppant is gravity-fed into the mixer from the proppant hopper and then immediately blended with process fluid and discharged as slurry with a minimum discharge pressure of 60 psi [0.41 MPa]. Computer-controlled elevated gates meter proppant into the process fluid using feedback from densitometers and flowmeters.

The unit also includes eight modular LAS* liquid additive systems and two dry additive systems, all of which are operated from a remote touchscreen. The unit can meter eight separate liquid additives with the flexibility to route the products to either or both vortex mixers. A single dry additive feeder is dedicated to each vortex mixer. To facilitate split-stream operations and acid jobs, the unit's transfer centrifugal pump and vortex mixers can meet the design requirements.

This unit features dual-side suction and discharge capability.

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StimCommander Process Trailer Unit Specifications

Trailer Chassis

Length, ft [m]	53 [16.15]
Width, ft [m]	8.2 [2.5]
Height, ft [m]	12.7 [3.9]
Trailer weight (dry), lbm [kg]	85,900 [38,964]
Trailer weight (with fluids), lbm [kg]	128,000 [58,060]

Gel Mixing System

POD mixer, rpm	Up to 1,400
Max. continuous mixing rate, bbl/min [m ³ /min]	27 [4.3]
Max. powder rate, lbm/min [kg/min]	135 [61]
Max. powder concentration	120 lbm/1,000 galUS at 27 bbl/min [54 kg/3.8 m ³ at 4.3 m ³ /min]
Min. continuous mixing rate, bbl/min [m ³ /min]	10 [1.6]
Powder metering system	Volumetric screw feeder
Powder feeder, lbm/min [kg/min]	4.2 to 135 [1.9 to 61]
Dry polymer powder bin capacity, lbm [kg]	6,000 [2,722]
Mixers	Two (2) standard Schlumberger patented vortex mixers
Max. discharge pressure, psi [MPa]	80 [0.55]
Max. sand rate per mixer, lbm/min [kg/min]	10,500 [4,763]
Max. slurry rate per mixer	60 bbl/min at 4 lbm of proppant added [9.5 m ³ /min at 1.8 kg of proppant added]

Additive Systems

Eight liquid additive systems, galUS/min [m ³ /h]	0.1 to 18 [0.02 to 4] into suction or discharge of either mixer
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