VSH2[™] Nitrogen-Over-Hydraulic Pumping Unit

Provides efficient rod pumping in wells with heavy crude production or rod-fall problems

Applications

- Lifting heavy crude in pump-to-surface operations
- · Correcting of rod-fall problems
- · Testing new and re-entry wells
- · Dewatering deep gas wells

Features

- Nitrogen supplies approximately one-half of the lifting power, which decreases the hydraulic horsepower requirement.
- The simple design features only three moving parts, excluding the prime mover.
- Units are ePIC[™] rod-pump controller ready (controller optional).
- Electric and single or dual-fuel systems are available.
- Pumps are compatible with automation technologies including WellPilot[®] rod-pump optimization controller (RPOC) and LOWIS[®] software.

Benefits

- VHS2 unit consumes less energy than conventional pumping units.
- Maintenance is minimal and consists of two filter changes per year along with normal visual inspections.
- The light weight and simple design minimize site preparation, transportation, and setup costs.
- Variable speed control enables operating flexibility and adjusting to well conditions.



The VSH2 unit provides energy-efficient rod pumping: (1) Nitrogen pushes down on the accumulator piston, and hydraulic fluid under the piston pushes up on the cylinder piston. (2) The servo valve routes pressurized fluid from the pump to the lower stage of the cylinder and cycles the cylinder rod up and down. (3) Proximity switches activate the electric displacement control, which operates the servo valve and changes stroke direction. (4) Control knobs change the SPM.

Tool Description

The Weatherford VSH2 nitrogenover-hydraulic pumping unit provides efficient rod pumping in wells with heavy crude production or rodfall problems. In many wells, this technology can lift greater loads and use less energy than conventional pumping units. The VSH2 pumping unit can accommodate polished-rod loads up to 40,000 lb (18,144 kg) and features a pump depth of 11,000 ft (3,353 m). The unit features a simple, turn-of-a-knob functionality to change strokes per minute (SPM).



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Specifications

Performance Data

Model	120	150
Maximum stroke (in., <i>mm</i>)	120 <i>3,04</i> 8	150 3,810
Minimum stroke (in., <i>mm</i>)	52 1,321	72 1,829
Maximum speed (SPM) ¹	8	6
Maximum rod loads² (lb, <i>kg</i>)	40,000 18,144	
Cylinder size (in., <i>mm</i>)	4 101.6	

¹Maximum SPM can vary depending on peak polished rod load (PPRL). ²Loads can vary depending on SPM.



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Specifications (continued)

Dimensions

	Model	120	150
A	Width (ft, <i>m</i>)		5.1 <i>1.5</i>
В	Length (ft, m)		8.5 <i>2</i> .6
С	Shipping height (ft, <i>m</i>)		4.8 1.4
С	Working height, 90° (ft, <i>m</i>)		6.2 1.9
С	Working height, vertical (ft, m)		9.6 2.9
D	Height, cylinder (ft, <i>m</i>)	21.3 6.5	23.1 7.0
Е	Height, pedestal (ft, m)	18.0 5.5	21.2 6.5
F	Shipping width, mast (in., mm)		26.0 660
G	Width, mast (in., <i>mm</i>)		18.5 <i>470</i>





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