

# KUDU HSU

## Hydraulic pumping unit

### APPLICATIONS

- Heavy, medium, and light oil wells
- Deep horizontal wells
- Shallow vertical wells
- Thermal wells

### BENEFITS

- Eliminates potential fluid leaks with no cylinder components exposed on the well
- Maximizes production efficiency caused by rod stretch
- Minimizes downtime and workovers
- Increases the gas compression ratio to prevent gas locks

### FEATURES

- Available in electric- or gas-powered options
- Various cylinder diameters and lengths
- Stroke length up to 336 in [8.53 m]
- No stuffing box required
- Ability to run up to two interdependent wells with one power unit

The KUDU HSU hydraulic pumping unit uses long strokes to maximize production efficiency and minimize downtime and workovers. Available in electric- and gas-powered options, and in several different cylinder diameters and lengths, the HSU unit package provides flexibility to suit varying well conditions.

### Operation

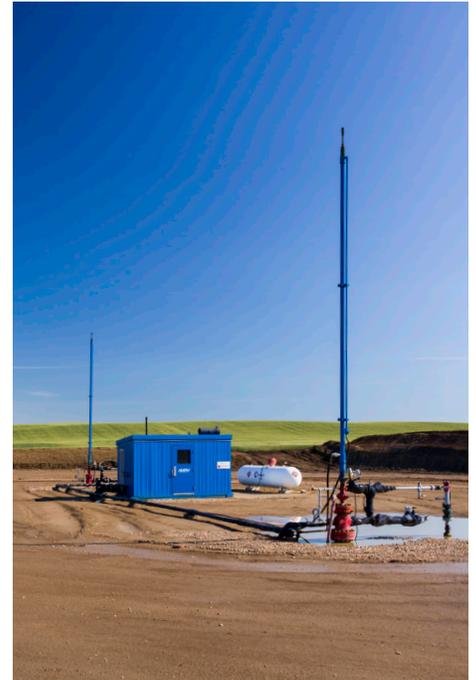
A hydraulic power unit consists of a hydraulic pump, a hydraulic tank, a cooling fan, controls, and a prime mover (gas-powered engine or electric motor) to provide fluid to a cylinder which is directly attached to the wellhead. The piston in the cylinder is attached to a polished rod which in turn connects to the sucker rodstring. As oil is pumped from the hydraulic power unit to the cylinder, the piston moves up the cylinder, actuating the sucker rodstring and in turn the bottomhole pump.

### Long stroke advantage

With lengths of up to 336 in [8.53 m], the long strokes of the HSU unit reduce cyclic stress, minimize rod stretch impact, improve gas compression ratios, and enhance overall system efficiency. Several different cylinder diameters and lengths provide design flexibility to suit any production requirements.

### Zero produced fluid leakage

The fully enclosed cylinders prevent leaks, thereby reducing downtime related to environmental exposure, equipment maintenance, and repair. This design further protects against spillage with a fully contained KUDU power unit enclosure.



*KUDU HSU and power unit installation.*

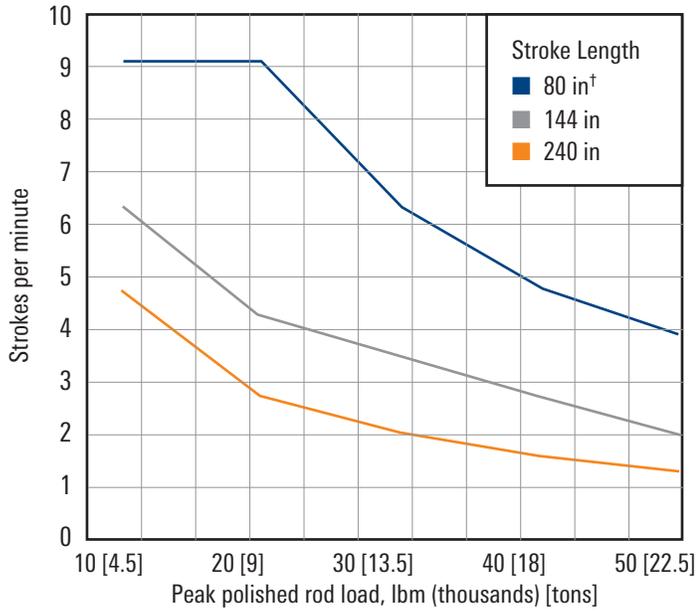
### Two cylinders and one power unit

The KUDU power unit is capable of operating two cylinders at the same time. This option reduces capital costs as compared with purchasing two complete systems.

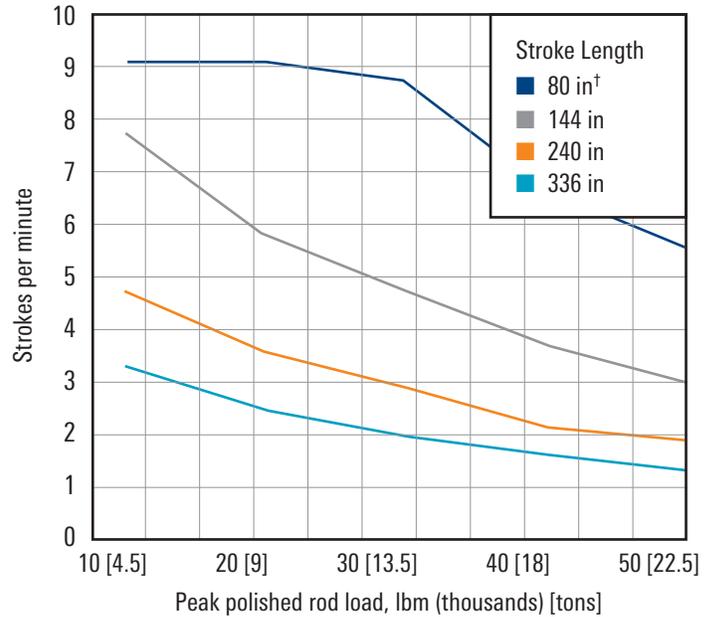
### Easy installation and maintenance

Installation of the HSU unit is quick and easy, requiring hours instead of days, and requires no special site preparation. All system-setting adjustments are viewable and can be changed either on site or remotely.

### 50-hp HSU Unit Capabilities

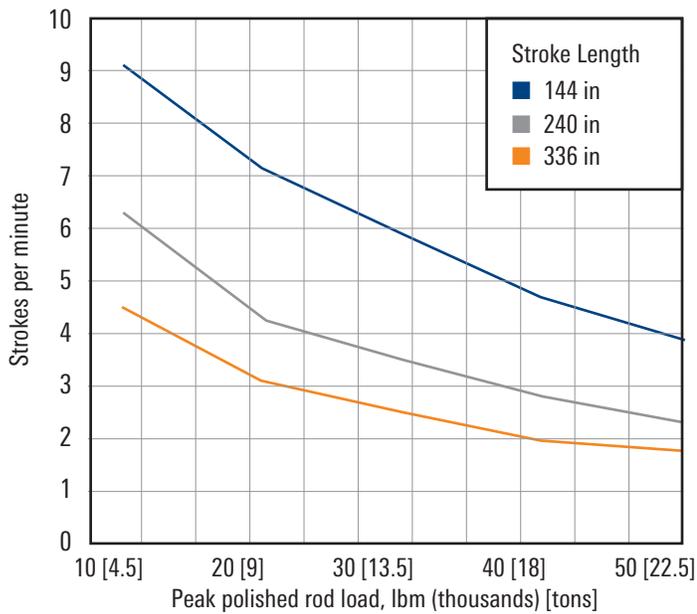


### 75-hp HSU Unit Capabilities

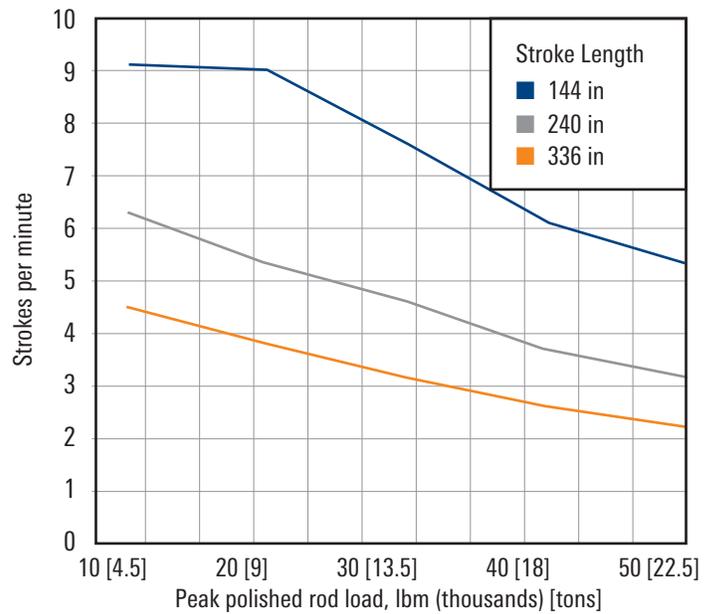


*\*This model is capable of higher SPM; however 10 strokes per minute is the highest recommended speed for all HSUs.*

### 100-hp HSU Unit Capabilities



### 150-hp HSU Unit Capabilities



*The capabilities graphs are based on 100% efficiency.*

# KUDU HSU

## Level 1

As the entry-level offering, the Level 1 HSU unit has the capacity to run two wells with one power unit and gives operators the flexibility of many different cylinder diameters and lengths. Changing the speed is quick and simple. The system is designed around specific production requirements, and in most instances, the Level 1 unit can be retrofitted to an existing power unit.

## Level 2

The Level 2 unit offers all the functionalities of the Level 1 unit, but also gives operators the ability to monitor and change system parameters either on site or remotely. The Level 2 unit generates a surface dynamometer card that can be used to analyze the well. It also provides a historical sampling of the entire system's pertinent data, including all alarm history, speed changes, and set points.

## HSU Models

Peak Polished Rod Load, lbf (thousands) [tons]	Cylinder Diameter, in [mm]	Stroke Length, in [mm]
30 [13.5]	3.5 [88.9]	80 [2,032]
30 [13.5]	3.5 [88.9]	144 [3,658]
30 [13.5]	3.5 [88.9]	240 [6,096]
30 [13.5]	3.5 [88.9]	336 [8,534]
40 [18]	4.0 [101.6]	80 [2,032]
40 [18]	4.0 [101.6]	144 [3,658]
40 [18]	4.0 [101.6]	240 [6,096]
40 [18]	4.0 [101.6]	336 [8,534]
50 [22.5]	4.5 [114.3]	80 [2,032]
50 [22.5]	4.5 [114.3]	144 [3,658]
50 [22.5]	4.5 [114.3]	240 [6,096]
50 [22.5]	4.5 [114.3]	336 [8,534]

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**Schlumberger**