

New Generation Long Stroke Pumping Units

FORLAND SERVICES LLC brings a new generation of long stroke pumping units with adjustable stroke length and individual upward/downward speed features to market. With proven technology and innovative design, the unit offers higher performance efficiency, greater output and investment return. This unit is designed to handle all types of well conditions especially deep wells, high fluid-volume wells, deviated, horizontal, gaseous wells, heavy and tight oil wells where other form of lift become inefficient or conventional rod lift is not feasible without excessive down time. In many applications, the unit can eliminate use of initial mid-size ESPs as well as assist in transitioning from ESPs or gas lift to rod lift sooner. For vertical wells where initial production is in the 700 to 900 bpd range, this unit is also efficient and can be installed during the first stage, enabling all downhole equipment kept consistent through whole production stage.

Features and Advantages

- Adjustable stroke length (≥ half max stroke length recommended); flexible start point of each stroke.
- Stepless SPM adjustment; independent up stroke and down stroke speed control, improving pump volumetric efficiency and helping eliminate gas-lock problems.
- Varies unit models and broad range of load capacity from 3 tons to 30 tons and fluid volume up to 7000 bpd meets a variety of production goals.
- Soft reversing mechanism thru combination of motor communication and VSD control, reducing impact on rods and downhole pump and improving system life span.
- Intelligent control system includes an integrated power supply, VSD/PLC unit, HMI module, physical indicators/buttons, and remote access module.







- Smart dual-traveling sprocket structure avoids the use of carriage as traversing mechanism and markedly reduces vibration of the rod as well as reduces required torque to allow the use of smaller motor and gear reducer.
- Linear counter balance and low system disturbance make dynamometer card very close to a theoretically perfect card.
- Easy counterweights change and ECB adjustment.
- ▶ 90% pre-assembled for easier onsite installation; easy counterweight adjustment and easy well service, no heavy equipment needed; easy repair of almost all major components on site.
- Multiple safety features including most moving parts enclosed within the structural tower away from personnel.

Specifications

Model Parameter	Model 270-240		360-306	500-306	500-366			
Max. Polished Rod Load (lbf/kN)	27,000	36,000	36,000	50,000	50,000			
	120	160	160	220	220			
Rated Reducer Torque (in·lbf/kN·m)	166,600	249,400	249,400	404,000	404,000			
	18.8	28.2	28.2	45.7	45.7			
Rated Motor Power (kW)	55	90	90	110	110			
Max. Stroke (in/m)	240	288	306	306	366			
	6	7.3	7.8	7.8	9.3			
Min. Stroke Length (in/m)	≥1/2 Max. Stroke							
Max. Stroke Speed (spm)	4.5	4.5	4.5	4.3	3.75			
Racetrack Max. Stroke Speed (spm)	5.6	5.5	5.5	5.4	4.6			
Min. Stroke Speed (spm)	≥0.5							
Counterbalance Box Weight (lbs/kg)	6,600	7,700	8,380	9,920	9,920			
	3,000	3,500	3,800	4,500	4,500			
Max. Auxiliary counterweight (lbs/kg)	15,000	17,640	22,040	30,860	30,860			
	6,800	8,000	10,000	14,000	14,000			
Unit Weight (lbs/kg)	31,970	46,300	50,260	55,110	59,520			
	14,500	21,000	22,800	25,000	27,000			
Unit Dimensions,	11.5*7.2*39.4	10.0 7.0 10.0		13.5*7.5*44.6	14.8*8.2*50.9			
L x W x H (ft/m)	3.5*2.2*12.0			4.1*2.3*13.6	4.5*2.5*15.5			
Shipping Dimensions,	8.2*6.6*37.7	8.9*7.2*41.7	8.9*7.2*43.3	8.9*7.2*43.3	10.2*7.9*49.2			
L x W x H (ft/m)	2.5*2.0*11.5	2.7*2.2*12.7	2.7*2.2*13.2	2.7*2.2*13.2	3.1*2.4*15.0			
Working Temperature (°F/°C)	$-40^{\circ}\text{F} \sim 160^{\circ}\text{F}$ $-40^{\circ}\text{C} \sim 70^{\circ}\text{C}$							
Automatic braking system	Yes							

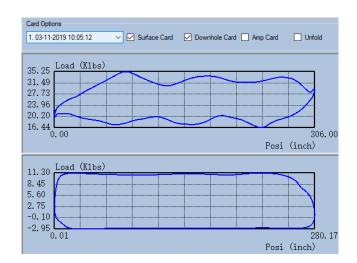


Maximum Production by Depth

Depth, ft	360-288/306		500-306			500-366			
	Pump Size, in	Max SPM	Production at 100%, bpd	Pump Size, in	Max SPM	Production at 100%, bpd	Pump Size, in	Max SPM	Production at 100%, bpd
2000	5.75	5.5	6105/6486	5.75	5.35	6310	5.75	4.6	6489
3000	4.75	5.48	4166/4427	4.75	5.35	4306	4.75	4.6	4428
4000	3.75	5.49	2597/2759	4.25	5.35	3447	4.45	4.6	3545
5000	3.25	5.5	1950/2072	3.75	5.35	2684	3.75	4.6	2760
6000	2.75	5.5	1396/1484	3.25	5.35	2016	3.25	4.6	2073
7000	2.25	5.5	935/993	2.75	5.35	1443	2.75	4.6	1484
8000	2	5.5	739/785	2.5	5.35	1193	2.5	4.6	1227
9000	1.75	5.5	565/601	2.25	5.35	966	2.25	4.6	994
10000	1.5	5.5	415/441	2	5.35	763	2	4.6	785
11000	1.25	5.5	289/307	1.75	5.35	584	1.75	4.6	601
12000	1.25	5.5	289/307	1.5	5.35	429	1.75	4.6	601

Applications

- High fluid-volume wells
- Heavy oil wells
- Directional drilled, horizontal wells
- Wells with complex conditions
- Alternative to initial mid-size ESPs
- **Energy saving**



FORLAND SERVICES LLC