Rotaflex® Long-Stroke Pumping Unit

High-performance efficiency in deep, high-volume, and problematic wells

Applications

- High-volume and high-load wells
- Deviated and horizontal wells prone to sucker-rod and tubing failure
- Heavy oil or high gas-to-liquid (GLR) wells
- Alternative to electric submersible pump (ESP) systems

Features and Benefits

- The Rotaflex pumping unit enables the transition to reciprocating rod-lift earlier in the production life cycle
- Unit arrives at the wellsite 90% preassembled for quick setup
- Optimized gear reducer combined with an efficient unit geometry requires less torque and reduces power usage by 15 to 40%
- Speed sentry monitors and records all pumping events and serves as an intelligent link to connected optimization systems
- Platform and rear-access doors above the gear reducer provide access away from the load belt for efficient maintenance
- Platform kick plates and grate prevent dropped objects and slips
- Ladder system enables easy access to critical components
- Large maintenance doors eliminate confined space issues and enable simplified maintenance; large front platform enables easy access to load counterweights
- Integrated hydraulic rollback system moves the unit at least 10 ft (3.05 m) away from the wellhead for easy access to the well
- Monitoring system analyzes unit vibration, belt tracking, rod load, and rod position with parameter-based alarm and shut-down capabilities

Pumping Unit Description

The Weatherford Rotaflex long-stroke pumping unit delivers a stroke length from 180 in. to 366 in. (4.6 m to 9.3 m) for efficient pumping in deep, high-volume, and problematic wells. The long, slow pump stroke allows more time for fluids to enter the pump intake, which increases pump fillage and lifting efficiency. The long-stroke, efficient counterbalance system, and unique unit geometry also increases system efficiency and energy savings. By reducing cycles and reversals by 40% to 60%, the unit lessens rod-on-tubing wear, minimizes downhole failures, and substantially lengthens sucker-rod and downhole-pump life. When paired with the optional WellPilot® controller, the Rotaflex unit optimizes each and every stroke for more efficient lifting than a beam-unit, rod-lift system.

Compared to standard pumping units, the Weatherford Rotaflex long-stroke pumping units improve productivity with a longer stroke, more complete barrel fillage, and less wear on surface and downhole equipment.

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Standard Features

All Rotaflex pumping units include the following as standard equipment:

- Speed sentry to safely monitor for overspeed, load violations, and more
- System-performance sensors, including upper- and lower-proximity switches, vibration sensor, belt-alignment sensors, hydraulic brake-pressure sensors, oil-level sensors, and a 50K load cell
- Complete wiring and quick connectors link the unit, junction box, and speed sentry to enable a plug-and-play pumping unit
- Integrated hydraulic rollback system enables easy access to the wellhead
- Hydraulic braking system
- Rod-rotator trip device
- Wire-mesh safety fence
- Front wind-shear panels
- Unit guard
- Belt-guide wheels
- Compliant to Australian Standard AS1657: 2018 (500 Series)

Optional Equipment

All Rotaflex pumping units can be optionally equipped with the following:

- WellPilot® variable-speed drive (VSD) controls speed throughout the stroke cycle to optimize downhole plunger travel, increasing production rates by 20%
- Units available that meet Class 1, Division 2 Canada Standards Association (CSA) requirement

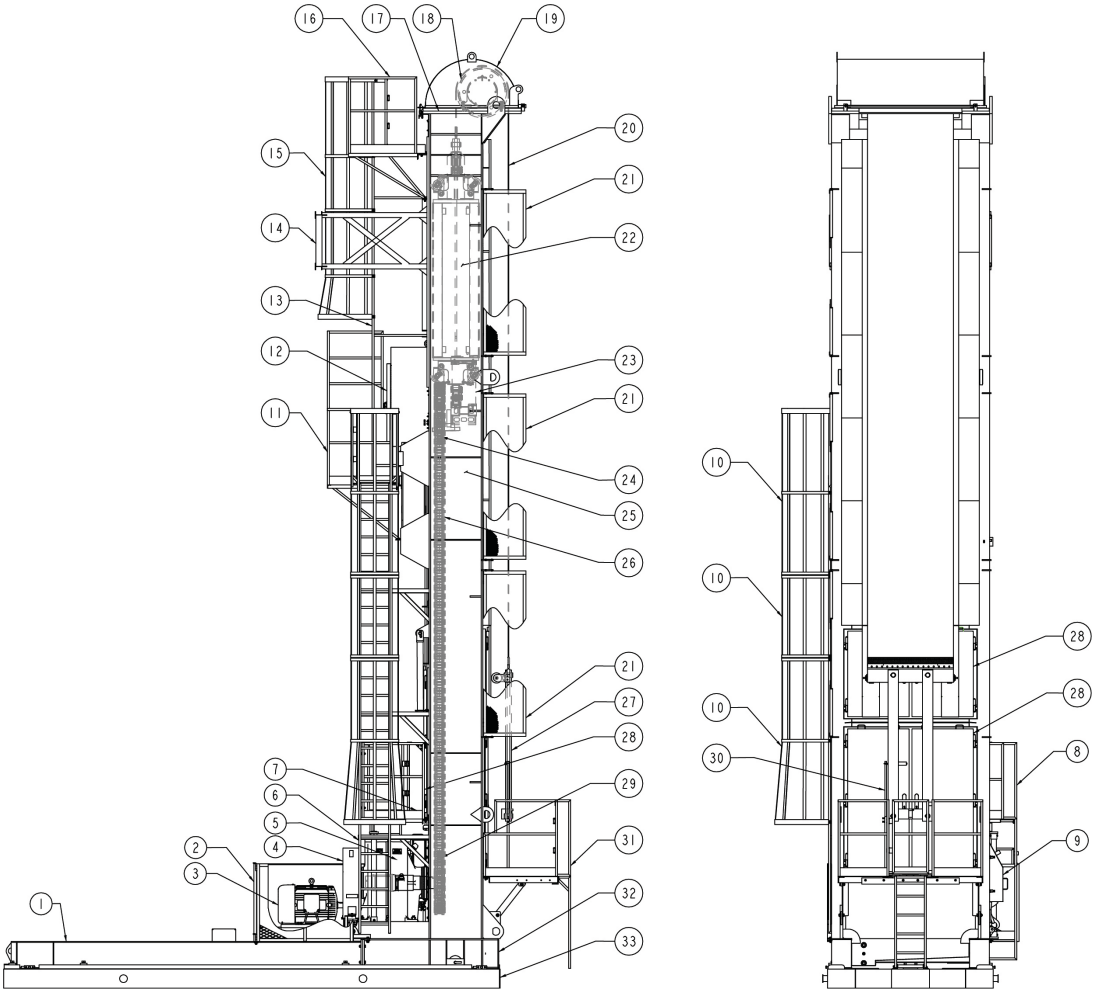
Complementary Equipment

All Rotaflex pumping units are compatible with the following Weatherford technologies:

- Premium sucker rods deliver maximized run life
- COROD® and semielliptical COROD continuous rods reduce rod-string weight and enable deeper lifting
- Sand-tolerant pump increases run life in solids-bearing wells
- ForeSite® production-optimization platform maximizes performance well-by-well and throughout a producing asset

Rotaflex® Long-Stroke Pumping Unit

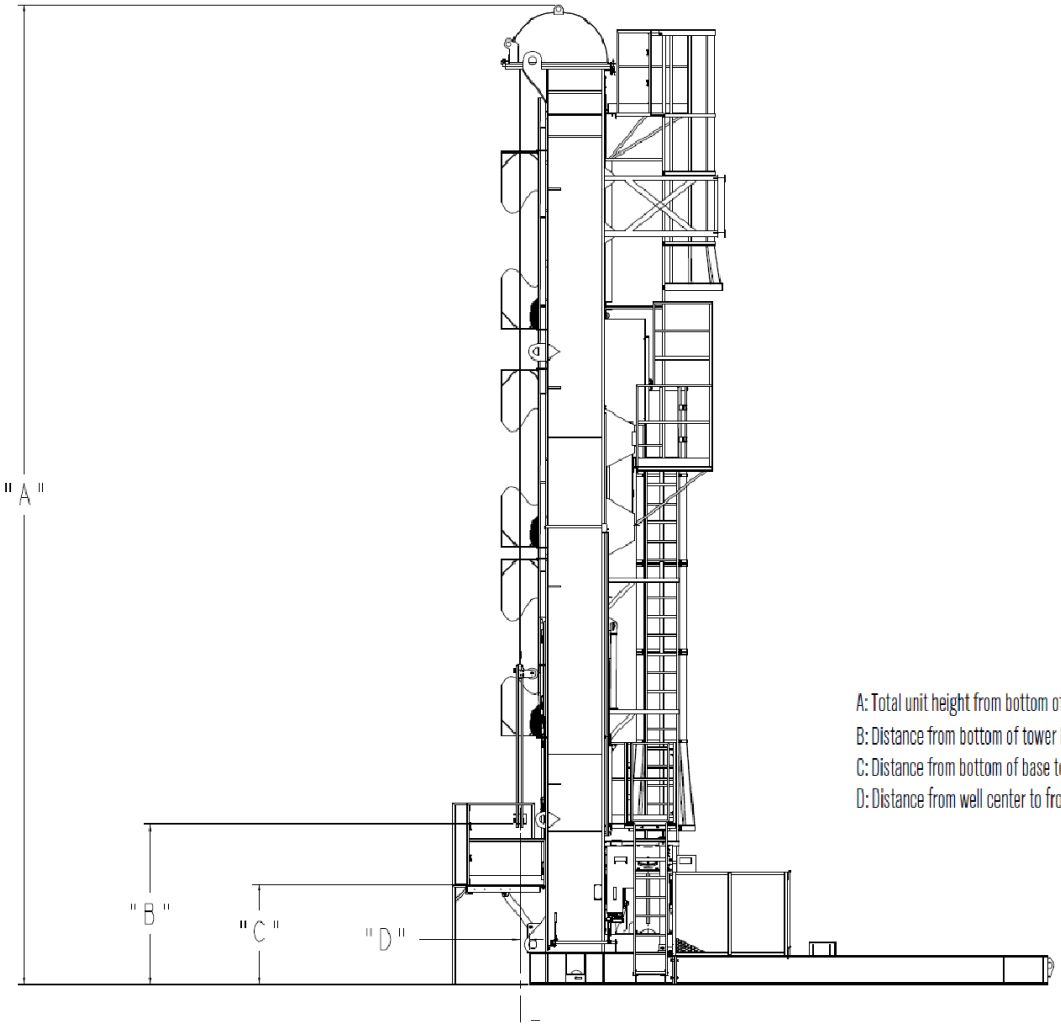
Parts Identification



1 Skid	12 Top sprocket enclosure	23 Carriage frame/traversing mechanism
2 Wire-mesh safety fence	13 Top ladder	24 Idler sproket
3 Prime mover	14 Crown shipping strut	25 Tower
4 V-belt/belt guard	15 Top ladder cage	26 Chain
5 Reducer	16 Top platform	27 Hanger bar
6 Bottom ladder	17 Crown	28 Counterweight doors
7 Rear-access platform	18 Top drum	29 Drive sproket
8 Ladder to rear-access platform	19 Hood	30 Rod rotator
9 Brake/brake guard	20 Load belt	31 Front platform
10 Bottom ladder cage	21 Wind guards	32 Tower base
11 Mid-tower platform	22 Counterweight box	33 Concrete base

Rotaflex® Long-Stroke Pumping Unit

Dimensional Data



A: Total unit height from bottom of base to top of hood
B: Distance from bottom of tower base to bottom of rod-hanger bar
C: Distance from bottom of base to top of front platform
D: Distance from well center to front of tower base

Model	A	B	C	D
RF500	364.09 in. (9.25 m)	67.53 in. (1.72 m)	48.00 in. (1.22 m)	6.50 in. (0.17 m)
RF700	434.97 in. (11.05 m)	80.00 in. (2.03 m)	48.00 in. (1.22 m)	6.50 in. (0.17 m)
RF800	486.70 in. (12.63 m)	84.60 in. (2.15 m)	47.90 in. (1.22 m)	5.78 in. (0.15 m)
RF950	484.64 in. (12.31 m)	73.27 in. (1.86 m)	49.88 in. (1.27 m)	5.38 in. (0.14 m)
RF1100	533.03 in. (13.54 m)	86.96 in. (2.21 m)	54.40 in. (1.38 m)	5.38 in. (0.14 m)
RF1150	593.03 in. (15.06 m)	54.40 in. (1.38 m)	54.40 in. (1.38 m)	5.38 in. (0.14 m)
RF1160	594.70 in. (15.11 m)	85.40 in. (2.17 m)	54.40 in. (1.38 m)	7.22 in. (0.18 m)

Rotaflex® Long-Stroke Pumping Unit

General Specifications (RF500, RF700, RF800, and RF950)

Rotaflex size	RF500	RF700	RF800	RF950
Reducer rating	114,000 in.-lbs (12,880 N-m)	250,000 in.-lbs (28,246 N-m)	250,000 in.-lbs (28,246 N-m)	350,000 in.-lbs (39,545 N-m)
Stroke length	180 in. (4.572 m)	236 in. (5.994 m)	288 in. (7.315 m)	288 in. (7.315 m)
Max polished-rod load	18,000 lbs (8,164 kg)	26,500 lbs (12,020 kg)	30,000 lbs (13,608 kg)	36,000 lbs (16,329 kg)
Sprocket diameter	24.5 in. (621.5 mm)	27.3 in. (694 mm)	27.3 in. (694 mm)	33.5 in. (852 mm)
Max SPM[A]	5	5	4.5	4.5
Racetrack average SPM	6	6	5.6	5.6
Peak straight-way SPM	6.9	6.9	6.2	6.2
Max ramp acceleration	80 in./sec² (2.03 m/sec²)	80 in./sec² (2.03 m/sec²)	80 in./sec² (2.03 m/sec²)	80 in./sec² (2.03 m/sec²)
Min SPM[B]	No minimum for short-term operation			
Min counterweight	3,750 lbs (1,700 kg)	6,450 lbs (2,926 kg)	7,000 lbs (3,175 kg)	8,730 lbs (3,960 kg)
Additional counterweight	7,650 lbs (3,470 kg)	14,880 lbs (6,749 kg)	18,000 lbs (8,165 kg)	18,800 lbs (8,528 kg)
Total counterweight	11,400 lbs (5,170 kg)	21,330 lbs (9,675 kg)	25,000 lbs (11,340 kg)	27,530 lbs (12,487 kg)
Load-belt width	25.6 in. (650 mm)	39.37 in. (1,000 mm)	39.37 in. (1,000 mm)	42.00 in. (1,067 mm)
Load-belt length	23.95 ft (7.3 m)	27.03 ft (8.2 m)	31.09 ft (9.5 m)	31.50 ft (9.6 m)
Installed dimensions[C]	21.5 x 10.9 x 30.3 ft* (6.54 x 3.3 x 9.2 m)*	18.1 × 11.5 × 36.4 ft (5.5 × 3.5 × 11.1 m)	23.1 × 11 × 40.6 ft (7.0 × 3.4 × 12.4 m)	27.3 × 11.9 × 40.4 ft (8.3 × 3.6 × 12.3 m)
Shipping dimensions	30.4 x 7.5 x 9.3 ft (9.3 x 2.3 x 2.8 m)	36.4 × 8.2 × 9.7 ft (11.1 × 2.5 × 2.95 m)	40.7 × 7.8 × 9.8 ft (12.4 × 2.5 × 2.9 m)	40.5 × 8.7 × 10.2 ft (12.3 × 2.6 × 3.1 m)
Shipping weight	27,800 lbs (12,610 kg)	35,800 lbs (16,230 kg)	41,500 lbs (18,825 kg)	56,100 lbs (25,447 kg)
Base weight	6,750 lbs (3,061.8 kg), steel	22,250 lbs (10,190 kg), concrete	22,250 lbs (10,190 kg), concrete	29,000 lbs (13,154 kg), concrete
Base dimensions	20.8 x 6.9 X 1.5 ft (6.5 x 2.1 x .45 m), steel**	21 x 7.4 x 1 ft (6.4 x 2.3 x .3 m), concrete	21 x 7.4 x 1 ft (6.4 x 2.3 x .3 m), concrete	24 × 8.5 × 1 ft (7.3 × 2.6 × .3 m), concrete
Working temp[D]	-4 to 122°F (-20 to 50°C)	-4 to 122°F (-20 to 50°C)	-4 to 122°F (-20 to 50°C)	-4 to 122°F (-20 to 50°C)
Automatic braking	Standard equipment			
Speed sentry				
Sensors				
Hydraulic rollback				

[A] This is the maximum SPM when operating at a constant speed. A variable speed drive (VSD) must be used to operate the unit in racetrack mode.
[B] At SPMs less than .8 SPM, the oiling system in the Rotaflex pumping unit may not adequately lubricate the chain. When a VSD is used, less than .5 SPM is not recommended.
[C] These dimensions exclude the front platform, motor guard, and any other attachments added in the field. The length is measured at the base.
[D] This is the standard unit rating. The Rotaflex pumping unit operates under these ambient temperatures if the correct fluids have been added to the appropriate components.
* Does not include front ladder which may be trimmed per operator needs.
** Piles and welded plate not included.

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Rotaflex® Long-Stroke Pumping Unit

General Specifications (RF1100, RF1150, and RF1160)

Rotaflex size	RF1100	RF1150	RF1160
Reducer rating	350,000 in.-lbs (39,545 N-m)	350,000 in.-lbs (39,545 N-m)	500,000 in.-lbs (56,492 N-m)
Stroke length	306 in. (7.772 m)	366 in. (9.296 m)	366 in. (9.296 m)
Max polished-rod load	50,000 lbs (22,680 kg)	50,000 lbs (22,680 kg)	60,000 lbs (27,216 kg)
Sprocket diameter	33.547 in. (852 mm)	33.547 in. (852 mm)	36.720 in. (933 mm)
Max SPM[A]	4.3	3.6	3.7
Racetrack average SPM	5.4	4.6	4.7
Peak straight-way SPM	6.0	5.1	5.2
Max ramp acceleration	80 in./sec² (2.03 m/sec²)	80 in./sec² (2.03 m/sec²)	80 in./sec² (2.03 m/sec²)
Min SPM[B]	No minimum for short-term operation		
Min counterweight	9,700 lbs (4,400 kg)	9,700 lbs (4,400 kg)	12,170 lbs (5,520 kg)
Additional counterweight	29,600 lbs (13,426 kg)	29,600 lbs (13,426 kg)	29,600 lbs (13,426 kg)
Total counterweight	39,300 lbs (17,826 kg)	39,300 lbs (17,826 kg)	41,770 lbs (18,946 kg)
Load-belt width	50 in. (1,270 mm)	50 in. (1,270 mm)	50 in. (1,270 mm)
Load-belt length	33.83 ft (10.3 m)	38.83 ft (11.8 m)	39.16 ft (11.9 m)
Installed dimensions[C]	27.3 × 11.9 × 44.3 ft (8.3 × 3.6 × 13.5 m)	27.3 × 11.9 × 49.3 ft (8.3 × 3.6 × 15 m)	27.3 × 11.9× 49.6 ft (8.3 × 3.6 × 15.1 m)
Shipping dimensions	44.5 × 8.7 × 10.2 ft (13.6 × 2.6 × 3.1 m)	49.5 × 8.7 × 10.2 ft (15.1 × 2.6 × 3.1 m)	49.7 × 8.7 × 10.4 ft (15.14 × 2.6 × 3.1 m)
Shipping weight	60,900 lbs (27,624 kg)	63,500 lbs (28,803 kg)	70,425 lbs (31,440 kg)
Base weight	29,000 lbs (13,154 kg), concrete	29,000 lbs (13,154 kg), concrete	29,000 lbs (13,154 kg), concrete
Base dimensions	24 × 8.5 × 1 ft (7.3 × 2.6 × 0.3 m), concrete	24 × 8.5 × 1 ft (7.3 × 2.6 × 0.3 m), concrete	24 × 8.5 × 1 ft (7.3 × 2.6 × 0.3 m), concrete
Working temp[D]	-4 to 122°F (-20 to 50°C)	-4 to 122°F (-20 to 50°C)	-4 to 122°F (-20 to 50°C)
Automatic braking	Standard equipment		
Speed sentry			
Sensors			
Hydraulic rollback			

[A] This is the maximum SPM when operating at a constant speed. A variable speed drive (VSD) must be used to operate the unit in racetrack mode.
[B] At SPMs less than .8 SPM, the oiling system in the Rotaflex pumping unit may not adequately lubricate the chain. When a VSD is used, less than .5 SPM is not recommended.
[C] These dimensions exclude the front platform, motor guard, and any other attachments added in the field. The length is measured at the base.
[D] This is the standard unit rating. The Rotaflex pumping unit operates under these ambient temperatures if the correct fluids have been added to the appropriate components.

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Rotaflex® Long-Stroke Pumping Unit

Rotaflex RF500 Max Production by Depth*

Depth	Rotaflex RF500 without Drive					Rotaflex RF500 with Drive				
	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%
1,000 ft (305 m)	3.25	5	86%	43%	1,102 B/D (175.2 m^3/d)	3.25	6	92%	46%	1,319 B/D (209.7 m^3/d)
2,000 ft (609 m)	2.5	5	93%	52%	634 B/D (100.8 m^3/d)	2.5	6	96%	50%	766 B/D (121.8 m^3/d)
3,000 ft (914 m)	2.25	5	96%	59%	504 B/D (80.1 m^3/d)	2.25	6	98%	61%	610 B/D (96.9 m^3/d)
4,000 ft (1,219 m)	2	5	95%	69%	384 B/D (61.1 m^3/d)	2	6	99%	73%	476 B/D (75.7 m^3/d)
5,000 ft (1,524 m)	1.75	5	96%	77%	290 B/D (46.1 m^3/d)	1.75	6	96%	75%	372 B/D (59.1 m^3/d)
6,000 ft (1,828 m)	1.75	5	98%	86%	289 B/D (45.9 m^3/d)	1.75	6	98%	78%	360 B/D (57.2 m^3/d)
7,000 ft (2,133 m)	1.5	5	98%	91%	213 B/D (33.9 m^3/d)	1.5	6	96%	80%	265 B/D (42.1 m^3/d)
8,000 ft (2,438 m)	1.25	5	92%	92%	160 B/D (25.4 m^3/d)	1.25	6	97%	93%	202 B/D (32.1 m^3/d)
9,000 ft (2,743 m)	1.25	5	91%	99%	120 B/D (19.1 m^3/d)	1.25	6	98%	98%	180 B/D (28.6 m^3/d)

*Table indicates theoretical results (not actual).

Rotaflex® Long-Stroke Pumping Unit

Rotaflex RF700 Max Production by Depth*

Depth	Rotaflex RF700 without Drive					Rotaflex RF700 with Drive				
	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%
2,000 ft (609 m)	4.75	5	60%	96%	2,945 B/D (466.5 m^3/d)	4.75	6	62%	97%	3,585 B/D (567.9 m^3/d)
3,000 ft (914 m)	3.75	5	59%	95%	1,779 B/D (281.8 m^3/d)	3.75	6	56%	95%	2,155 B/D (341.4 m^3/d)
4,000 ft (1,219 m)	3.25	5	55%	99%	1,300 B/D (205.9 m^3/d)	3.25	6	51%	99%	1,585 B/D (251.1 m^3/d)
5,000 ft (1,524 m)	2.75	5	54%	100%	898 B/D (142.2 m^3/d)	2.75	6	51%	98%	1,100 B/D (174.2 m^3/d)
6,000 ft (1,828 m)	2.25	5	47%	97%	623 B/D (98.7 m^3/d)	2.25	6	52%	100%	700 B/D (121.9 m^3/d)
7,000 ft (2,133 m)	2.00	5	45%	100%	433 B/D (68.6 m^3/d)	2	6	50%	100%	597 B/D (94.6 m^3/d)
8,000 ft (2,438 m)	1.50	5	45%	100%	380 B/D (60.2 m^3/d)	1.5	6	45%	100%	440 B/D (69.7 m^3/d)
9,000 ft (2,743 m)	1.25	5	38%	100%	278 B/D (44.0 m^3/d)	1.25	6	41%	100%	357 B/D (56.5 m^3/d)
10,000 ft (3,048 m)	1.06	5	32%	100%	202 B/D (31.9 m^3/d)	1.06	6	40%	100%	254 B/D (40.2 m^3/d)
11,000 ft (3,352 m)	1.06	5	31%	100%	150 B/D (23.8 m^3/d)	1.06	6	39%	98%	186 B/D (29.5 m^3/d)

*Table indicates theoretical results (not actual).

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Rotaflex RF800 Max Production by Depth*

Depth	Rotaflex RF800 without Drive					Rotaflex RF800 with Drive				
	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%
2,000 ft (609 m)	4.75	4.5	75%	99%	3,345 B/D (531.8 m^3/d)	4.25	5.6	69%	87%	3,380 B/D (537.4 m^3/d)
3,000 ft (914 m)	3.75	4.5	61%	95%	2,046 B/D (325.3 m^3/d)	3.75	5.6	70%	99%	2,436 B/D (387.3 m^3/d)
4,000 ft (1,219 m)	3.25	4.5	52%	91%	1,118 B/D (177.7 m^3/d)	3.25	5.6	54%	94%	1,416 B/D (225.1 m^3/d)
5,000 ft (1,524 m)	2.50	4.5	52%	96%	904 B/D (143.7 m^3/d)	2.50	5.6	56%	97%	1,144 B/D (181.9 m^3/d)
6,000 ft (1,828 m)	2.25	4.5	50%	88%	701 B/D (111.5 m^3/d)	2.25	5.6	52%	91%	900 B/D (143.0 m^3/d)
7,000 ft (2,133 m)	2.00	4.5	49%	91%	555 B/D (88.2 m^3/d)	2.00	5.6	50%	92%	712 B/D (113.2 m^3/d)
8,000 ft (2,438 m)	1.75	4.5	46%	92%	422 B/D (67.1 m^3/d)	1.75	5.6	45%	92%	547 B/D (86.9 m^3/d)
9,000 ft (2,743 m)	1.50	4.5	39%	90%	323 B/D (51.4 m^3/d)	1.50	5.6	47%	90%	410 B/D (65.9 m^3/d)
10,000 ft (3,048 m)	1.50	4.5	42%	99%	310 B/D (49.3 m^3/d)	1.50	5.6	48%	100%	404 B/D (64.2 m^3/d)
11,000 ft (3,352 m)	1.25	4.5	35%	96%	220 B/D (34.9 m^3/d)	1.50	5.6	55%	96%	293 B/D (46.6 m^3/d)
12,000 ft (3,658 m)	1.06	4.5	39%	95%	167 B/D (26.6 m^3/d)	1.06	5.6	59%	97%	218 B/D (34.7 m^3/d)

* Table indicates theoretical (not actual) results.

Rotaflex® Long-Stroke Pumping Unit

Rotaflex 950 Max Production by Depth*

Depth	Rotaflex RF950 without Drive					Rotaflex RF950 with Drive				
	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%
2,000 ft (609 m)	5.75	4.5	94.0%	99.9%	4,757 B/D (756.2 m^3/d)	5.75	5.50	93.8%	99.1%	5,910 B/D (939.6 m^3/d)
3,000 ft (914 m)	4.75	4.5	90.0%	99.9%	3,082 B/D (489.8 m^3/d)	4.75	5.48	92.9%	99.4%	3,759 B/D (597.6 m^3/d)
4,000 ft (1,219 m)	3.75	4.49	77.4%	100%	1,966 B/D (312.5 m^3/d)	3.75	5.49	87.0%	99.9%	2,404 B/D (382.2 m^3/d)
5,000 ft (1,524 m)	3.25	4.49	76.1%	100%	1,430 B/D (227.3 m^3/d)	3.25	5.50	80.8%	99.7%	1,766 B/D (280.8 m^3/d)
6,000 ft (1,828 m)	2.75	4.48	73.1%	100%	1,040 B/D (165.1 m^3/d)	2.75	5.50	76.6%	99.8%	1,296 B/D (206.0 m^3/d)
7,000 ft (2,133 m)	2.50	4.49	65.4%	99.5%	830 B/D (131.8 m^3/d)	2.25	5.50	64.2%	98.0%	903 B/D (143.6 m^3/d)
8,000 ft (2,438 m)	2.25	4.40	61.2%	100%	650 B/D (103.2 m^3/d)	2	5.50	58.2%	99.9%	704 B/D (111.9 m^3/d)
9,000 ft (2,743 m)	1.75	4.50	50.9%	100%	443 B/D (70.3 m^3/d)	1.75	5.50	53.7%	99.9%	557 B/D (88.6 m^3/d)
10,000 ft (3,048 m)	1.50	4.50	46.6%	100%	329 B/D (52.1 m^3/d)	1.5	5.50	57.9%	99.8%	424 B/D (67.4 m^3/d)
11,000 ft (3,352 m)	1.25	4.50	44.2%	99.7%	240 B/D (37.9 m^3/d)	1.25	5.50	61.2%	100%	301 B/D (47.8 m^3/d)
12,000 ft (3,657 m)	1.25	4.50	39.6%	91.3%	226 B/D (35.8 m^3/d)	1.25	5.50	49.6%	91.0%	290 B/D (46.1 m^3/d)

* Table indicates theoretical (not actual) results.

Rotaflex® Long-Stroke Pumping Unit

Rotaflex 1100 Max Production by Depth*

Depth	Rotaflex RF1100 without Drive					Rotaflex RF1100 with Drive				
	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%
2,000 ft (609 m)	5.75	4.30	99.5%	85.8%	4,963 B/D (789.1 m^3/d)	5.75	5.50	93.8%	99.1%	6,132 B/D (974.9 m^3/d)
3,000 ft (914 m)	4.75	4.30	99.5%	90.0%	3,319 B/D (527.7 m^3/d)	4.75	5.48	92.9%	99.4%	4,100 B/D (651.8 m^3/d)
4,000 ft (1,219 m)	4.25	4.30	99.2%	99.2%	2,549 B/D (405.2 m^3/d)	3.75	5.49	87.0%	99.9%	3,203 B/D (509.2 m^3/d)
5,000 ft (1,524 m)	3.75	4.30	94.5%	99.2%	1,934 B/D (307.5 m^3/d)	3.25	5.5	80.8%	99.7%	2,449 B/D (389.4 m^3/d)
6,000 ft (1,828 m)	3.25	4.30	91.5%	99.1%	1,464 B/D (232.8 m^3/d)	2.25	5.5	76.6%	99.8%	1,867 B/D (296.8 m^3/d)
7,000 ft (2,133 m)	2.75	4.30	85.5%	99.9%	1,072 B/D (170.4 m^3/d)	2.25	5.5	64.2%	98.0%	1,391 B/D (221.2 m^3/d)
8,000 ft (2,438 m)	2.50	4.30	85.5%	99.9%	893 B/D (141.9 m^3/d)	2.00	5.5	58.2%	99.9%	1,121 B/D (178.2 m^3/d)
9,000 ft (2,743 m)	2.25	4.30	80.6%	99.8%	697 B/D (110.8 m^3/d)	1.75	5.5	53.7%	99.9%	926 B/D (147.2 m^3/d)
10,000 ft (3,048 m)	2.00	4.30	69.0%	99.9%	567 B/D (90.1 m^3/d)	1.50	5.5	57.9%	99.8%	758 B/D (120.5 m^3/d)
11,000 ft (3,352 m)	1.75	4.30	61.3%	96.0%	445 B/D (70.7 m^3/d)	1.25	5.5	61.2%	100%	588 B/D (93.4 m^3/d)
12,000 ft (3,657 m)	1.50	4.29	59.2%	99.9%	342 B/D (54.4 m^3/d)	1.25	5.5	49.6%	91%	492 B/D (78.2 m^3/d)

*Table indicates theoretical (not actual) results.

Rotaflex® Long-Stroke Pumping Unit

Rotaflex 1150 Max Production by Depth*

Depth	Rotaflex RF1150 without Drive					Rotaflex RF1150 with Drive				
	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%
2,000 ft (609 m)	5.75	3.63	99.9%	88.9%	5,033 B/D (800.2 m^3/d)	5.75	4.96	99.1%	85.9%	6,955 B/D (1,105.7 m^3/d)
3,000 ft (914 m)	4.75	3.63	99.7%	90.2%	3,393 B/D (539.3 m^3/d)	4.75	4.96	99.7%	82.9%	4,627 B/D (735.6 m^3/d)
4,000 ft (1,219 m)	4.25	3.63	97.9%	99.0%	2,643 B/D (420.2 m^3/d)	4.25	4.96	98.1%	88.4%	3,561 B/D (566.1 m^3/d)
5,000 ft (1,524 m)	3.75	3.63	98.5%	99.8%	2,034 B/D (323.3 m^3/d)	3.75	4.57	99.5%	95.4%	2,552 B/D (405.7 m^3/d)
6,000 ft (1,828 m)	3.25	3.63	91.7%	99.6%	1,521 B/D (241.8 m^3/d)	3.25	4.97	96.7%	99.9%	2,126 B/D (338.0 m^3/d)
7,000 ft (2,133 m)	2.75	3.62	86.8%	100%	1,112 B/D (176.7 m^3/d)	2.75	4.97	92.8%	100%	1,559 B/D (247.9 m^3/d)
8,000 ft (2,438 m)	2.50	3.64	82.9%	99.1%	895 B/D (142.2 m^3/d)	2.50	4.98	82.7%	99.8%	1,287 B/D (204.6 m^3/d)
9,000 ft (2,743 m)	2.25	3.63	79.3%	99.4%	729 B/D (115.9 m^3/d)	2.25	5.00	77.4%	97.8%	1,032 B/D (164.1 m^3/d)
10,000 ft (3,048 m)	2.25	3.63	75.4%	99.8%	695 B/D (110.5 m^3/d)	2.00	4.98	78.7%	99.9%	828 B/D (131.6 m^3/d)
11,000 ft (3,352 m)	2.00	3.62	71.3%	100%	562 B/D (89.4 m^3/d)	1.75	4.99	80.9%	99.7%	667 B/D (106.0m^3/d)
12,000 ft (3,657 m)	1.75	3.64	63.8%	99.4%	433 B/D (68.8 m^3/d)	1.75	4.99	74.1%	99.5%	631 B/D (100.3 m^3/d)

* Table indicates theoretical (not actual) results

Rotaflex® Long-Stroke Pumping Unit

Rotaflex 1160 Max Production by Depth*

Depth	Rotaflex RF1160 without Drive					Rotaflex RF1160 with Drive				
	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%	Pump Size	SPM	Reducer Loading	Structual Loading	Production at 100%
2,000 ft (609 m)	5.75	3.7	84%	66%	4,261 B/D (677.4 m^3/d)	5.75	4.6	92%	83%	5,278 B/D (839.1 m^3/d)
3,000 ft (914 m)	4.75	3.6	89%	84%	3,373 B/D (536.3 m^3/d)	4.25	4.6	76%	70%	3,420 B/D (543.7 m^3/d)
4,000 ft (1,219 m)	4.25	3.5	76%	78%	2,442 B/D (388.2 m^3/d)	4.25	4.6	82%	79%	3,347 B/D (532.1 m^3/d)
5,000 ft (1,524 m)	3.75	3.7	71%	74%	2,006 B/D (318.9 m^3/d)	3.75	4.6	70%	76%	2,544 B/D (404.5 m^3/d)
6,000 ft (1,828 m)	3.75	3.7	75%	85%	1,903 B/D (302.6 m^3/d)	3.25	4.6	65%	74%	1,894 B/D (301.1 m^3/d)
7,000 ft (2,133 m)	3.25	3.7	70%	83%	1,419 B/D (225.6 m^3/d)	3.25	4.6	70%	83%	1,798 B/D (285.9 m^3/d)
8,000 ft (2,438 m)	2.75	3.7	55%	76%	1,047 B/D (166.5 m^3/d)	2.75	4.6	66%	82%	1,334 B/D (212.1 m^3/d)
9,000 ft (2,743 m)	2.75	3.7	67%	87%	977 B/D (155.3 m^3/d)	2.50	4.6	66%	85%	1,151 B/D (183.0 m^3/d)
10,000 ft (3,048 m)	2.50	3.7	58%	92%	829 B/D (131.8 m^3/d)	2.50	4.6	68%	98%	1,047 B/D (166.5 m^3/d)
11,000 ft (3,352 m)	2.25	3.7	53%	91%	645 B/D (102.5 m^3/d)	2.25	4.6	65%	97%	846 B/D (135.0 m^3/d)
12,000 ft (3,657 m)	2.25	3.7	68%	98%	628 B/D (99.8 m^3/d)	2.25	4.6	58%	95%	701 B/D (112.0 m^3/d)
13,000 ft (3,696 m)	2.00	3.7	48%	95%	594 B/D (94.4 m^3/d)	2.00	4.4	58%	100%	605 B/D (96.2 m^3/d)
14,000 ft (4,267 m)	1.75	3.7	50%	96%	409 B/D (65.0 m^3/d)	1.75	4.6	53%	97%	550 B/D (87.3 m^3/d)

*Table indicates theoretical (not actual) results.

