



LF™ 230 SURFACE CORING DRILL

Technical Overview

LF™ 230 SURFACE CORING DRILL

Power

The LF™ 230 deep hole drill provides the features and the power required to get just about any job done, easily and efficiently. A 40,000 lb hoist allows for rig depth capacity beyond its class. The PQ™ Nitro-Chuck™ is field tested and designed to offer performance and reliability to conquer even the hardest projects.

Mobility

The LF230 is contained to a small footprint, optimized for easy transport. Engineered for mobility, the LF230 surface coring drill features a telescoping mast with dump capability. The telescoping features afford a compact size during transport while the dump capability lowers the working height of the machine to enable mounting on a truck or scow.

Reliability

The open-faced mast features a common center line through the chuck and feed cylinders, decreasing wear on components. Simple hydraulics and structural design makes this drill easy to operate and maintain.



1 DUMP MAST

Lowers working height and relieves load on the mast, making for more efficient design

2 ERGONOMIC OPERATOR PANEL

The electric over hydraulic system reduces operator fatigue, and lift-to-shift levers provide additional operator safety

3 SIMPLE HYDRAULIC DESIGN

Design-coupled hydraulic pumps with a PTO-driven auxiliary pump allow for easy maintenance

4 ROTATION BARRIER

Interlocked rotation barrier slows rotation when barrier is open, providing additional operator safety. Mainline winch limiter and tensioner prevent over-winding and bird-nesting of the cable

5 HYDRAULIC SIDE-SHIFTING HEAD

Lowers working height when handling inner tube.

6 NITRO-CHUCK™

Patented nitrogen gas spring jaws with hydraulic open/spring-close function ensuring fail safe operation

7 9 M ROD-PULL

Increases Productivity

MAINLINE WINCH LIMITER AND TENSIONER (NOT PICTURED)

Prevents over-winding and bird-nesting of the cable

SMALL FOOTPRINT

Compact design, as compared to other machines in this class, allows for easy transportation and a smaller site footprint.

TECHNICAL INFORMATION

Drilling Depth Guidelines				
	Dry Hole		Fluid Filled	
Drill Rod / Core Barrel	Hole Depth Meters	Hole Depth U.S.	Hole Depth Meters	Hole Depth U.S.
BRQ™ / BQ™*	3024	9921	3462	11358
BRQ™TK / BQ™TK	3806	12488	4360	14306
NRQ™ / NQ™ / NQ™2	2326	7632	2661	8730
NRQ™ V-Wall™	2630	8627	2983	9788
HRQ™ / HQ™	1578	5176	1806	5925
HRQ™ V-Wall™	1987	6518	2246	7368
PHD /PQ™	1043	3421	1190	3904
PHD V-Wall™	1421	4663	1592	5223

The figures in these tables have been calculated, based on field experiences, and may be reasonably expected. Ratings are based on a vertical, straight, clean down hole using a 18 258 kg (40,000 lb) hoist (single line pull). Actual drilling capacity will depend on in-hole tools, conditions, drilling techniques and equipment used.

* BQ capacity shown for comparison purposes only. It is not recommended drilling practice to drill over 2 000 m BQ depth. Always verify manufacturers rod depth ratings prior to use.

Prime Mover		
	Metric	U.S.
Standard Unit	Cummins QSC 8.3 L, liquid cooled, turbo charged, charge air cooled engine.	
Displacement	8.3 L	506 in ³
Power (maximum) at 2,200 RPM	205 kW	275 hp
Emissions	Stage™ III	tier 3

Torque and RPM Ratings			
	Metric		U.S.
(Hydraulic motor at maximum/minimum displacement, prime mover at 2,200 RPM)			
	Speed (no load)		Torque (stall)
	RPM	Nm	lbft
1st gear	144 - 199	5322 - 3826	3925 - 2822
2nd gear	288 - 400	2648 - 1898	1953 - 1400
3rd gear	514 - 714	1486 - 1068	1096 - 788
4th gear	900 - 1250	849 - 610	626 - 450

Note: Head output speed and torque are infinitely variable in each gear range as indicated.

Actual rotation speed is affected by engine RPM and hydraulic motor displacement setting.

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Hydraulic System		
	Metric	U.S.
Primary Pump	Axial piston, variable displacement, load sensing, pressure compensated with low pressure standby.	
Max flow	318 L/m	84 gpm
Maximum Pressure (factory setting)	31 MPa	4500 psi
Secondary Pump	Axial piston, variable displacement, load sensing, pressure compensated with low pressure standby.	
Max flow	72 L/m	19 gpm
Maximum pressure (factory setting)	21 MPa	3000 psi
Auxiliary Pump	Axial piston, variable displacement, pressure compensated.	
Max flow	42 L/min	11 gpm
Maximum pressure (factory setting)	14 MPa	2000 psi
Hydraulic Tank Capacity	435 L	115 gal

Drill Head		
	Metric	U.S.
Rotation Motor	Resroth hydraulic motor - variable / reversible	
Ratios	1st	6.27:1
	2nd	3.12:1
	3rd	1.75:1
	4th	1.00:1
Final Drive	Straight cut gears	
Ratio	2:1	
Head Opener	Pivoting style - hydraulically actuated	
Hydraulic PQ™ Chuck	Patented Nitro-Chuck™ Hydraulically opened, nitrogen gas spring closed Axial holding capacity of 222 400 N (50,000 lbf)	
Drill Head Lubrication	Force fed bearings, oil bath for gears, external sump	
Drill Head Lubricating Oil Filtration	25 micron suction oil filter	

Drill Mast and Feed System		
	Metric	U.S.
Feed stroke	3.35 m	11 ft
Feed pull	223 300 N	50200 lbf
Feed Thrust	117 877 N	26500 lbf
Rod Pull	6 or 9 m	20 or 30 ft
Drilling Angle	45° off horizontal to 90° vertical down	
Mast Dump (crowd)	2.74 m	9 ft
Mast Telescope	2.87 m	9.42 ft

TECHNICAL INFORMATION

Draw Works		
	Metric	U.S.
Main line winch	Two speed motor	
Hook load (single part line)		
Bare Drum	18144 kg	4000 lb
Hoisting speed (single part line)		
Bare Drum	72 m/min and 40 m/min	236 ft/min and 131 ft/min
Main line winch cable dia.	22 mm	7/8 in
Minimum breaking strength	51891 kg	114400 lb
Note: Do not use multiple part lines with the main line hoist, use single part line ONLY.		
Foot clamp capacity	HWT	
Wireline Hoist		
Level wind	Chain driven - dual ratio	
Line Pull		
Bare Drum	907 kg	2000 lb
Full Drum	510 kg	1125 lb
Line Speed		
Bare Drum	160 m/min	525 ft/min
Full Drum	284 m/min	932 ft/min
Drum Capacity	3300 m	10827 ft
Note: Wireline cable length to be specified at time of order		

Additional Information		
Fuel Tank Capacity	Metric	U.S.
Standard (short frame)	238 L	63 gal
Optional (long frame)	485 L	128 gal



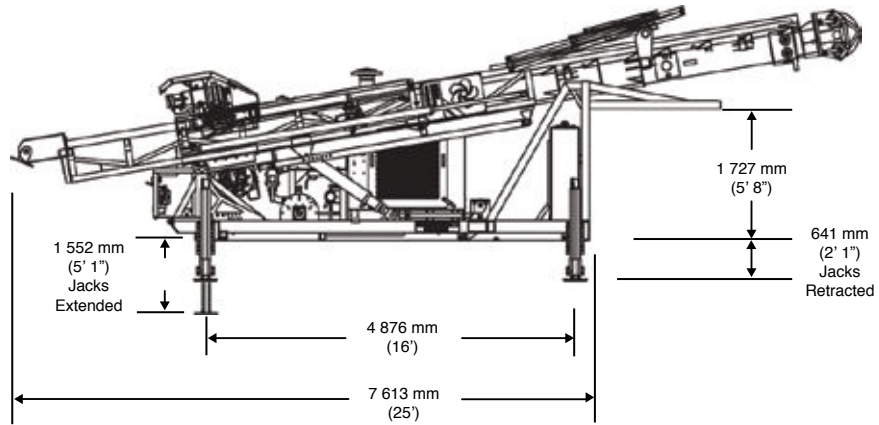
DIMENSIONS AND WEIGHTS*

Wet Weight **=13607 kg (30000 lb)
Consisting of:
Power unit group Cummins QSC 8.3 L, tier 3, 6 cylinder
Hydraulic Module
Draw Works Grp. c/w 40,000 lb main line hoist with cable, wireline hoist less cable
Hydraulic mast raising
Hydraulic mast dump
Telescopic mast assembly
Rotation unit grp. c/w PQ™ NitroChuck™
Base frame
Fuel tank (485 L/128 gal)
Battery
Hydraulic leveling jacks / outriggers (optional)
Foot clamp
Mast access ladders
Hydraulic water pump
** For high mobility, the mast mounted platform is kept lightweight. An optional rod rack is available for vertical holes only, otherwise rods are stacked on the ground.

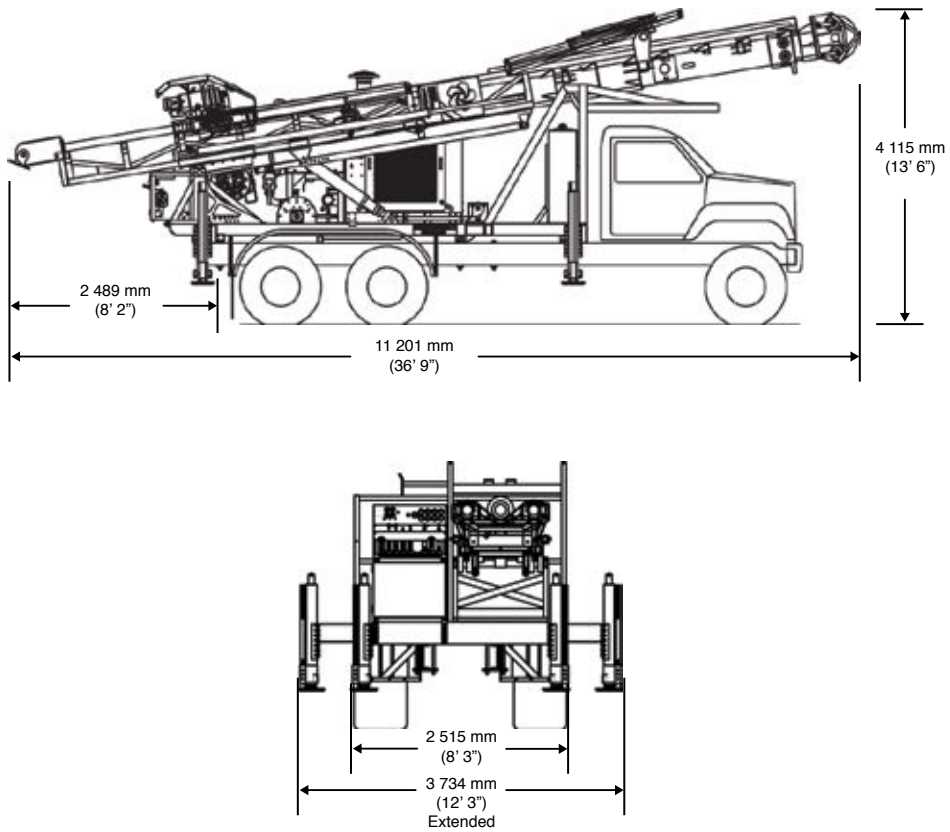
Options
Truck mounted - International 5600
Catwalk, railing and access stairs
Rod rack platform (vertical holes only)***
Hydraulic cooler (hot climate)
Mast rest (truck mount version)
Decals available in multiple languages
Fluid circulation pumps (diesel supply and pressure)
Mud mixer
*** Limited to 22000 lb of gross weight stacked at 5° off vertical mast. i.e. 140 x 30 ft stands NQ™
Warning: do not operate this drill with rods racked in wind velocities in excess of 85 km/h. this unit must not be operated without a truck or drilling skid base installed for stability.

* Dimensions and weights may vary depending on options and should be checked before crating or lifting.

Drill Transport Position - Basic Drill



Drill Transport Position c/w Optional Truck

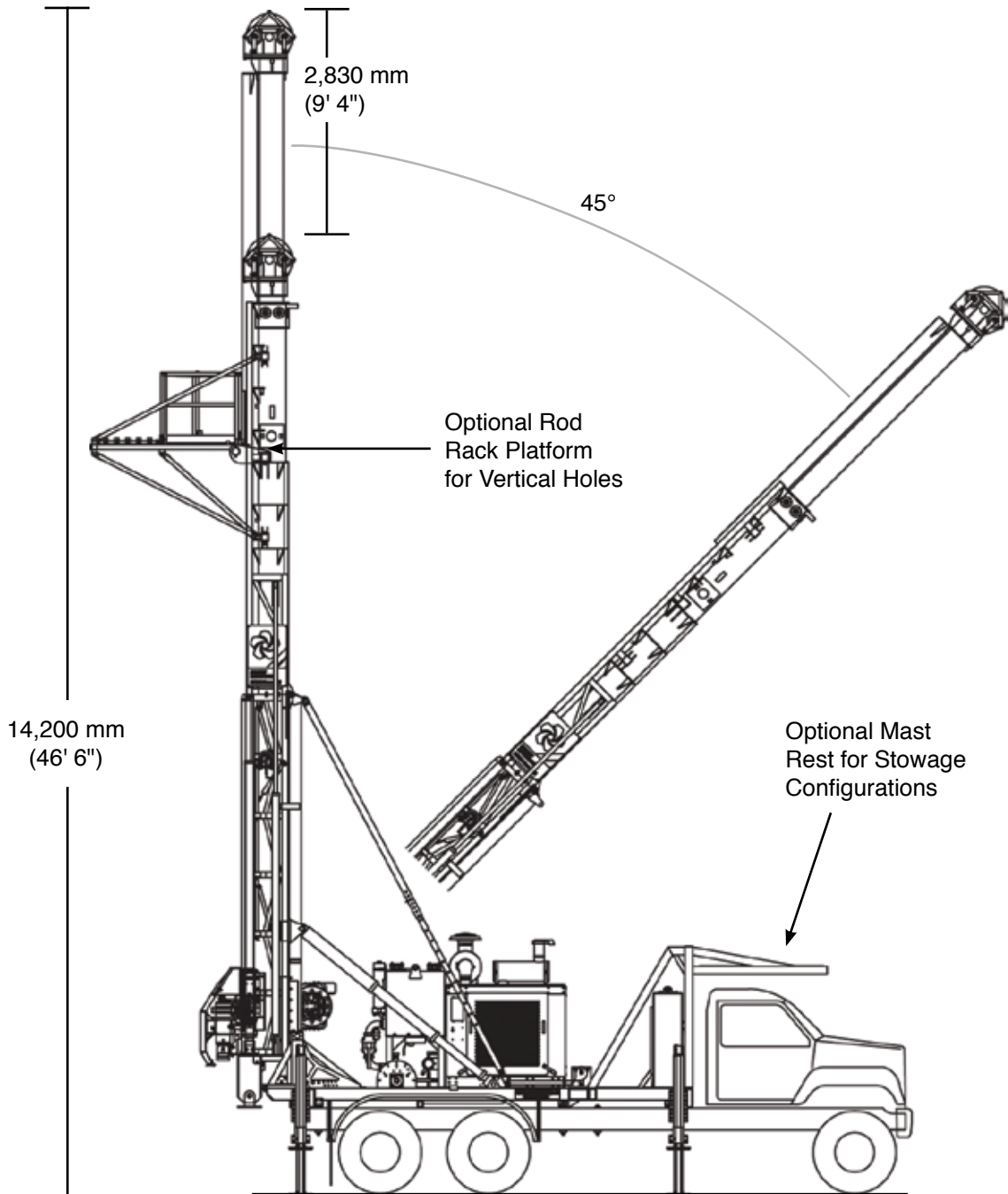


Drill - Mast at 90° C/W Optional Truck

Side view of drill with mast in 9 m (30 ft) pull

Note: Dimensions are with hydraulic leveling jacks extended to ground level. Leveling jack full stroke is 914 mm (3')

(Shown with optional truck)



(W11) Fluid Circulation Pump Group (Optional)

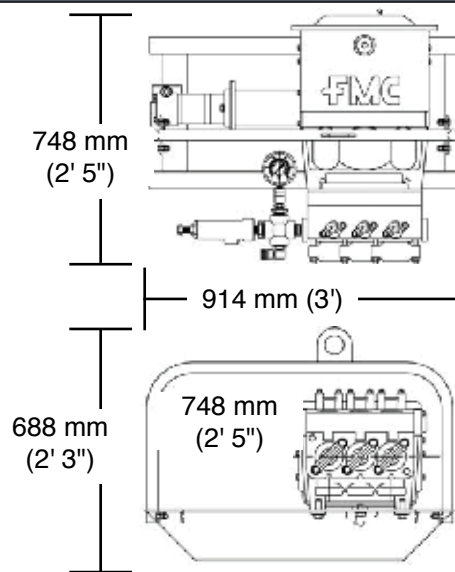
Wet Weight = 254 kg (560 lb)

The max. output of the standard 2-speed motor of the W11 is as follows:

- High vol./low pres.
35 gpm @ 300 psi 6.2 hp
- Low vol./high pres.
17 gpm @ 800 psi 7.9 hp

If a higher output pressure system is required an optional 2-speed motor can be supplied with the following max. output:

- High vol./low pres.
23 gpm @ 950 psi 12.7 hp
- Low vol./high pres.
11 gpm @ 1000 psi 6.4 hp

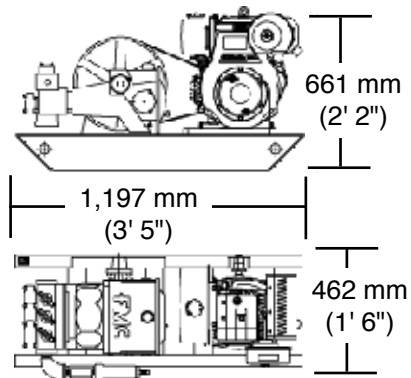


(L09) Fluid Supply Pump Group - Diesel (Optional)

Wet Weight = 145 kg (320 lb)

The Max. output of the standard 2-speed motor of the L09 is as follows:

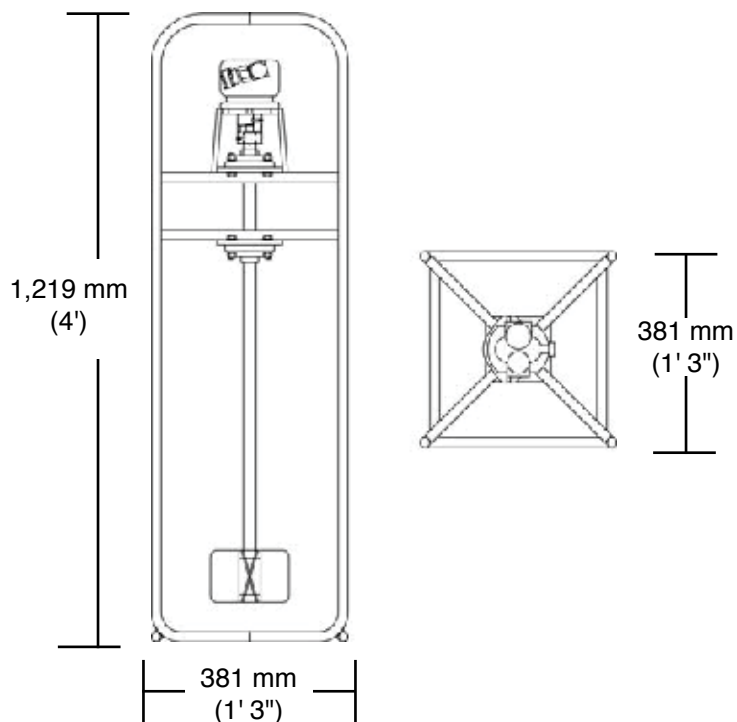
- High vol./low pres.
20 gpm @ 300 psi
- Low vol./high pres.
10 gpm @ 800 psi



Mud Mixer Assembly (Optional)

Weight = 31 kg (68 lb)

Note: Maximum speed of the mud mixer shaft at full flow is 2,300 rpm





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