

LF™ 70 Core Drill

Technical Data Sheet



May 2009

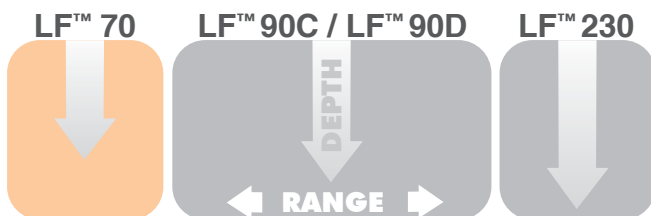
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PRODUCT OVERVIEW

The LF70 is the platform Boart Longyear® developed today's complete surface rig offering from. It's modular light weight design makes this rig the obvious solution for heliportable work or remote locations.

FEATURES:

- Cummins 4BTA 3.9 L Tier 1 engine provides you with the power you need.
- Patented Nitro-Chuck® – offers you performance and reliability (1 year warranty).
- 6 ft feed stroke and 12,000 lb mainline hoist improves productivity and increases depth capacity.
- Upgraded control panel for improved safety and ergonomics.
- Easily breaks down into flight modules (heaviest lift 554 kg)



DRILLING DEPTH GUIDELINES

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 5 450 kg (12,000 lb)

hoist (single line pull). Actual drilling capacity will depend on in-hole tools, conditions, drilling techniques and equipment used.

| DRILL ROD / CORE BARREL | DRY HOLE | | FLUID FILLED | |
|-------------------------|---------------------|-------------------|---------------------|-------------------|
| | Hole Depth (meters) | Hole Depth (feet) | Hole Depth (meters) | Hole Depth (feet) |
| BRQ / BQ | 907 | 2,976 | 1 039 | 3,407 |
| BRQTK / BQTK | 1 142 | 3,746 | 1 308 | 4,292 |
| NRQ / NQ / NQ2 | 698 | 2,290 | 798 | 2,619 |
| NRQ V-WALL™ | 789 | 2,588 | 895 | 2,936 |
| HRQ / HQ | 473 | 1,553 | 542 | 1,778 |
| HRQ V-WALL™ | 596 | 1,955 | 674 | 2,210 |
| PHD / PQ | 313 | 1,026 | 357 | 1,171 |
| PHD V-WALL™ | 426 | 1,399 | 478 | 1,567 |

* Always verify manufacturers rod depth ratings prior to use.

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TECHNICAL SPECIFICATIONS

| | METRIC SYSTEM | U.S. CUSTOMARY SYSTEM |
|--|---|----------------------------------|
| PRIME MOVER | | |
| Standard Unit | Cummins 4BTA 3.9 L, 4 cylinder, water cooled, turbo charged, diesel engine. | |
| Displacement | 3.9 L | 239 in ³ |
| Power (maximum) at 2,450 RPM | 98 kW | 131 hp |
| Emissions Certification | Not compliant in EU | Tier 1 |
| Fly Weight | | |
| Optional Unit | Deutz BF4L914, 4 cylinder, air cooled, turbo charged, diesel engine. | |
| Displacement | 4 L | 263 in ³ |
| Power (maximum) at 2,450 RPM | 72 kW | 98 hp |
| Emissions Certification | Tier II | Tier 2 |
| Fly Weight | 510 Kg | 1,124 lb |
| HQ DRILL HEAD - STANDARD | | |
| Standard HQ - Hollow Spindle | | |
| Maximum Rod Diameter | 95 mm | 4 in |
| Rotation Motor | Rexroth hydraulic motor - variable/reversible | |
| Mechanical Transmission | Funk 4 speed | |
| Ratios | 1st | 6.63:1 |
| | 2nd | 3.17:1 |
| | 3rd | 1.72:1 |
| | 4th | 1.00:1 |
| Final Drive | Roller chain drive | |
| Ratio | 2.58:1 | |
| Head Opener | Pivot style — manual operation | |
| Hydraulic HQ Chuck | Patented Nitro-Chuck® | |
| | Hydraulically opened, nitrogen gas spring closed. | |
| | Axial holding capacity of 133 447 N (30,000 lbf) | |
| Drill Head Lubrication | Force fed bearings, oil bath for roller chain - PTO driven | |
| Drill Head Lubrication Oil Filtration | 25 Micron high pressure oil filter | |
| Fly Weight | | |
| TORQUE AND RPM RATINGS - HQ HEAD | | |
| (Hydraulic motor at maximum/minimum displacement, prime mover at 2,200 RPM) | | |
| | Speed (no load) | Torque (stall) |
| | RPM | Nm lbf |
| 1st Gear | 95 - 190 | 4 610 - 2 305 3,400 - 1,700 |
| 2nd Gear | 200 - 400 | 2 170 - 1 085 1,600 - 800 |
| 3rd Gear | 370 - 730 | 950 - 610 700 - 450 |
| 4th Gear | 630 - 1,250 | 680 - 340 500 - 250 |
| 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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TECHNICAL SPECIFICATIONS

| | METRIC SYSTEM | U.S. CUSTOMARY SYSTEM | |
|--|---|-----------------------|---------------|
| PQ DRILL HEAD - OPTIONAL | | | |
| Optional PQ - Hollow Spindle | | | |
| Maximum Rod Diameter | 122 mm | 5 in | |
| Rotation Motor | Rexroth hydraulic motor - variable/reversible | | |
| Mechanical Transmission | Funk 4 speed | | |
| 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: manual operation | | |
| 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 - PTO driven | | |
| Drill Head Lubricating Oil Filtration | 25 micron high pressure oil filter | | |
| TORQUE AND RPM RATINGS - PQ HEAD | | | |
| (Hydraulic motor at maximum/minimum displacement, prime mover at 2,200 RPM) | | | |
| | Speed (no load) | Torque (stall) | |
| | RPM | Nm | lbft |
| 1st Gear | 122 - 199 | 5 322 - 3 254 | 3,925 - 2,400 |
| 2nd Gear | 246 - 400 | 2 648 - 1 620 | 1,953 - 1,195 |
| 3rd Gear | 439 - 714 | 1 486 - 908 | 1,096 - 670 |
| 4th Gear | 769 - 1,250 | 849 - 519 | 626 - 383 |
| 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. | | | |
| HYDRAULIC SYSTEM | | | |
| Primary Pump | Axial piston, variable displacement load sensing, pressure compensated with low pressure standby. | | |
| Max Flow | 163 L/m | 43 gpm | |
| Maximum Pressure (factory setting) | 24 MPa | 3,500 psi | |
| Secondary Pump | Axial piston, variable displacement load sensing, pressure compensated with low pressure standby. | | |
| Max Flow | 42 L/m | 11 gpm | |
| Maximum Pressure (factory setting) | 14 MPa | 2,000 psi | |
| Auxiliary Pump | Axial piston, variable displacement load sensing, pressure compensated with low pressure standby. | | |
| Max Flow | 38 L/m | 10 gpm | |
| Maximum Pressure (factory setting) | 14 MPa | 2,000 psi | |
| Hydraulic Tank Capacity | 144 L | 38 Gal | |

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TECHNICAL SPECIFICATIONS

| | METRIC SYSTEM | U.S. CUSTOMARY SYSTEM |
|--|---|-----------------------|
| DRILL MAST AND FEED SYSTEM | | |
| Feed Stroke | 2 m | 6 ft |
| Pull Capacity @ 2,000 psi | 6 414 kg | 14,137 lbf |
| Thrust Capacity @ 2,000 psi | 4 231 kg | 9,326 lbf |
| Rod Pull | 3 or 6 m | 10 or 20 ft |
| Drilling Angle | 45° off horizontal to 90° vertical down | |
| Mast Dump (Crowd) | N/A | |
| DRAW WORKS | | |
| Main Line Hoist | Single speed motor | |
| Hook Load (single part line) | | |
| Bare Drum | 5 450 kg | 12,000 lb |
| Hoisting Speed (single part line) | | |
| Bare Drum | 1 m/min | 3 ft/min |
| Main Hoist Cable | 15 mm | 0.59 in |
| Minimum Breaking Strength | 23 042 kg | 50,800 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 | N/A | |
| Line Pull | | |
| Bare Drum | 990 kg | 2,190 lb |
| Full Drum | 277 kg | 502 lb |
| Line Speed | | |
| Bare Drum | 100 m/min | 337 ft/min |
| Full Drum | 433 m/min | 1,470 ft/min |
| Drum Capacity 4.8 mm (3/16") swaged | 1 890 m | 6,200 ft |
| Minimum Breaking Strength | 2 268 kg | 5,000 lb |
| NOTE: Wireline cable length to be specified at time of order. | | |
| ADDITIONAL INFORMATION | | |
| Fuel Tank Capacity | 57 L | 15 Gal |

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DIMENSIONS AND WEIGHTS*

WEIGHT - FLY DRILL

Wet Weight = 3 220 kg (6,500 lb)

Consisting of:

- Cummins 4BTA 3.9 L, Tier 1, 4 cylinder, water cooled, turbo charged, diesel engine
- Hydraulic Module
- Draw Works Grp. c/w 12,000 lb Main Line Hoist, Wireline Hoist
- 3 Piece Lattice Mast Assembly
- HQ Rotation Unit Grp. c/w Nitro-Chuck®
- Base Frame
- Fuel Tank (57 L/15 US gal)
- Battery - 12V
- Stabilizer Legs (4)

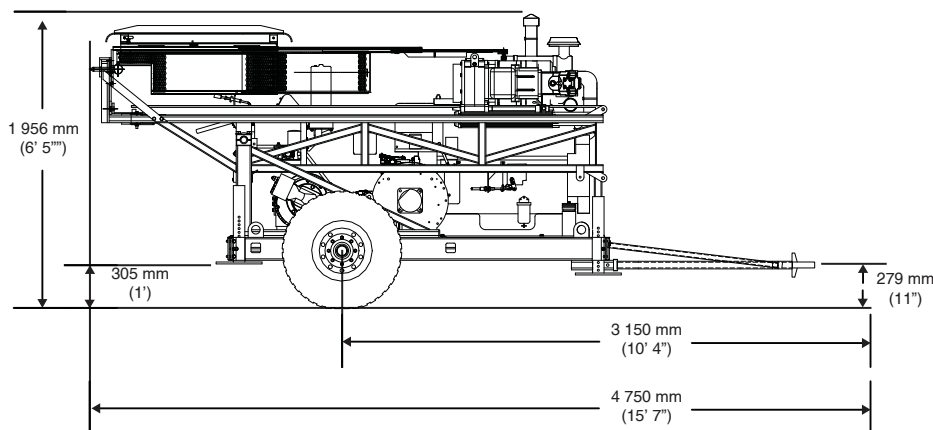
OPTIONS

- PQ rotation unit group
- Decals available in multiple languages
- Diesel engine - Deutz
- Mast raising cylinders
- Wireline cable
- Rod rack
- Mud tank
- Towing package
- Fluid circulation pumps (diesel supply and pressure)
- Mud mixer

WARNING: Do not operate this drill with rods racked in wind velocities in excess of 85 km/h

NOTE: Not highway rated

DRILL TRANSPORT POSITION C/W OPTIONAL TOWING PACKAGE



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

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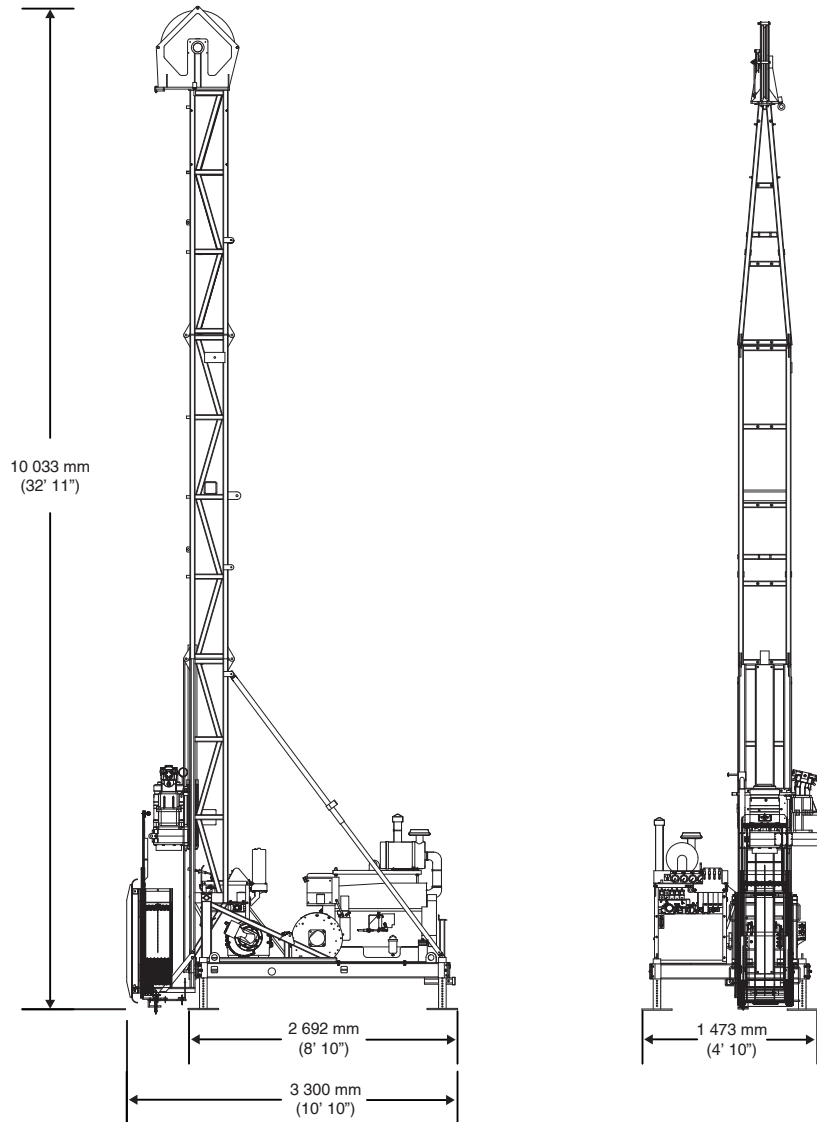
DIMENSIONS AND WEIGHTS*

SIDE VIEW - MAST AT 90°

Wet Weight = 3 220 kg (6,500 lb)

Dimensions: Deduct 3 233 mm (10' 7")
from overhang if Middle
Mast section is removed.

NOTE: Base dimensions are with
mechanical stabilizer legs
at the uppermost position.
Overall height can be
increased by 247 mm
(9.75") by adjusting legs
downwards.



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

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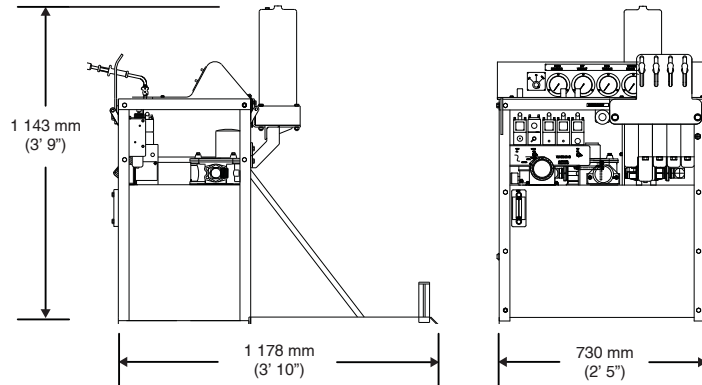
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DIMENSIONS AND WEIGHTS*

HYDRAULIC MODULE

Wet Weight = 417 kg (920 lb)

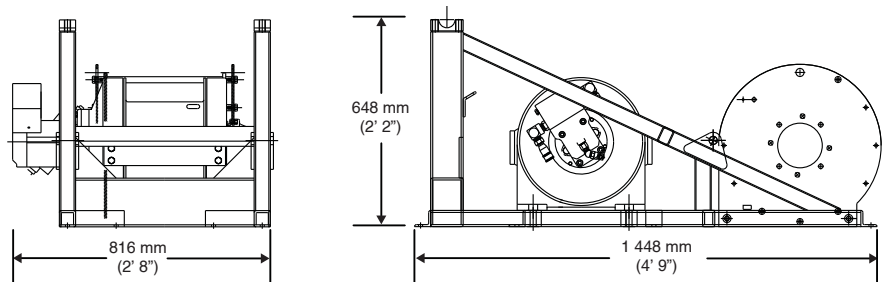


DRAW WORKS MODULE (KPL12)

Weight = 450 kg (992 lb)
(without cable and mast raising cylinders)

Mainline Hoist Cable =
15 mm x 22.9 m (0.59 in x 75 ft)
single part line - 26 kg (58 lb)

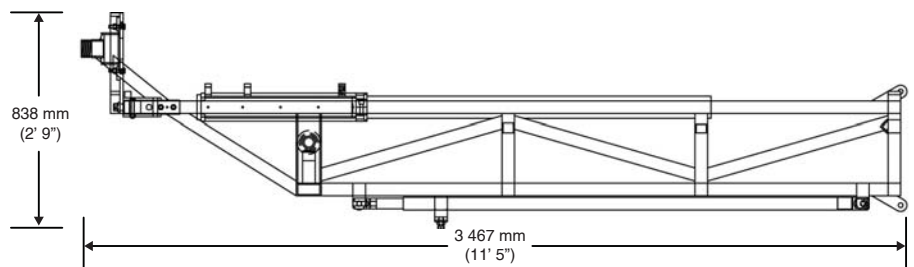
Wireline Hoist Cable =
4.8 mm x 1280 m (0.18 in x 4200 ft)
118 kg (260 lb)



NOTE: Lengths mentioned do not represent the max. rated drum capacity, they are typical values only.

LOWER MAST SECTION

Weight = 554 kg (1,222 lb)
(Footclamp removed)



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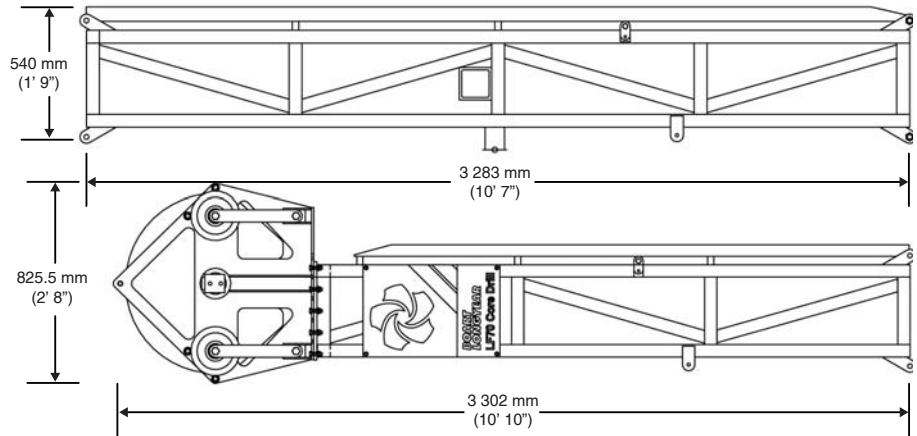
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DIMENSIONS AND WEIGHTS*

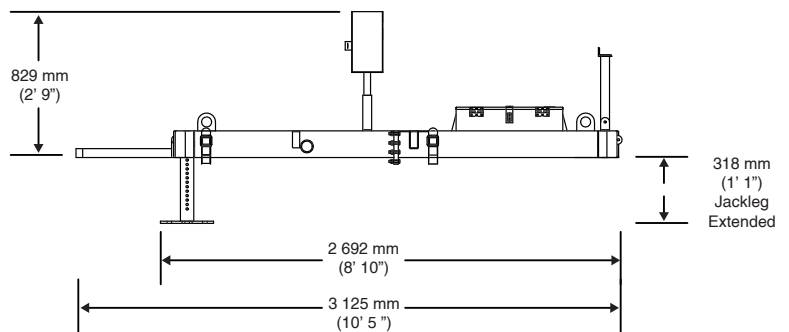
MIDDLE AND UPPER MAST SECTIONS

Combined Weight = 363 kg (800 lb)



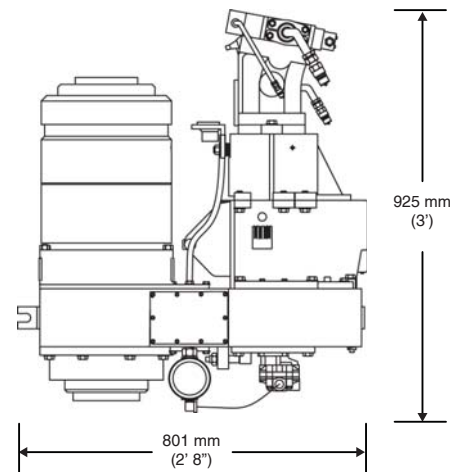
DRILL BASE

| | |
|---------------------------------|-----------------|
| Wet Weight (Bare) = | 286 kg (630 lb) |
| Wheel and Stub Axle (each) | 51 kg (112 lb) |
| Towing Hitch | 25 kg (55 lb) |
| Fuel Tank (wet) | 57 kg (125 lb) |
| Battery Box (including battery) | 61 kg (134 lb) |
| Mud Tank Outriggers (each) | 12 kg (26 lb) |
| Stabilizer Legs (each) | 11 kg (25 lb) |
| Operator Platform | 12 kg (26 lb) |



HQ DRILL HEAD c/w NITRO-CHUCK®

Dry Weight = 376 kg (860 lb)



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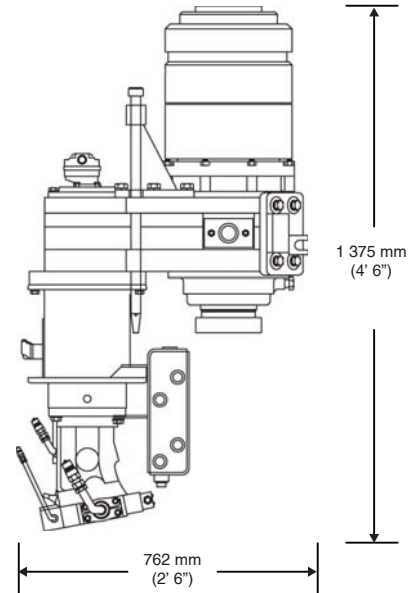
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DIMENSIONS AND WEIGHTS*

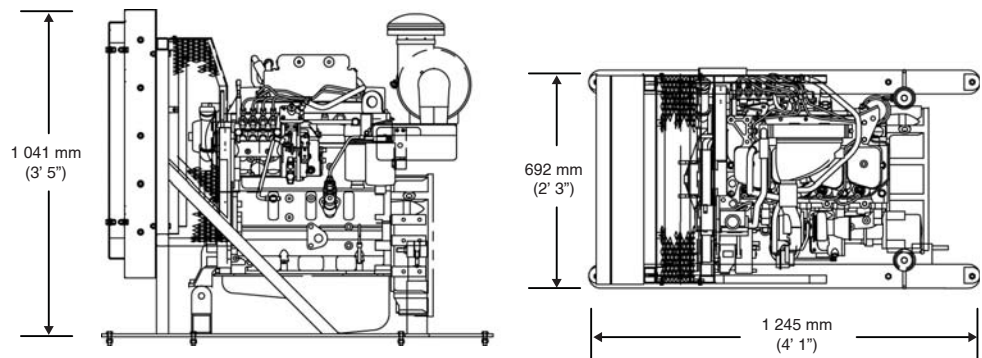
PQ DRILL HEAD c/w NITRO-CHUCK® (OPTIONAL)

Dry Weight = 580 kg (1,279 lb)



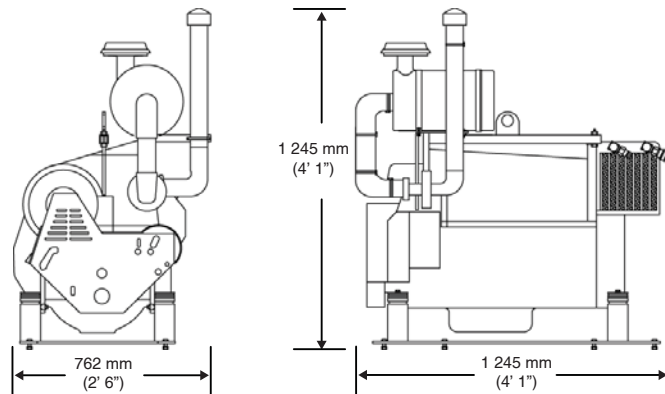
POWER UNIT - CUMMINS 4BTA 3.9, TIER I

Dry Weight = 510 kg (1,124 lb)



POWER UNIT - DEUTZ BF4L914, TIER II (OPTIONAL)

Dry Weight = 496 kg (1,094 lb)



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DIMENSIONS AND WEIGHTS*

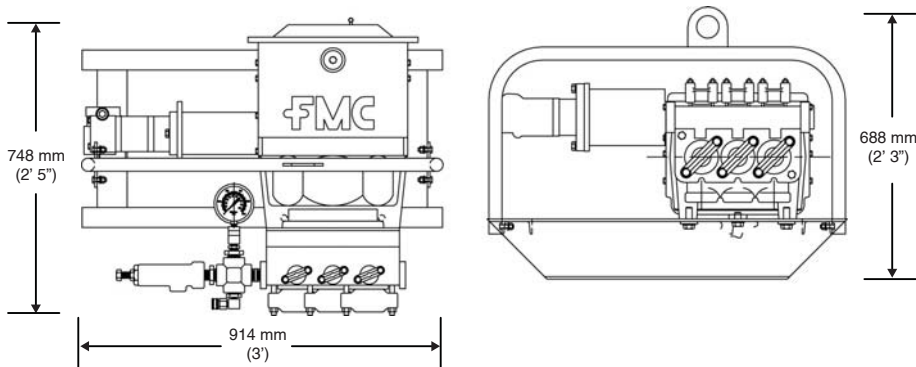
(W11) FLUID CIRCULATION PUMP GROUP (OPTIONAL)

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:

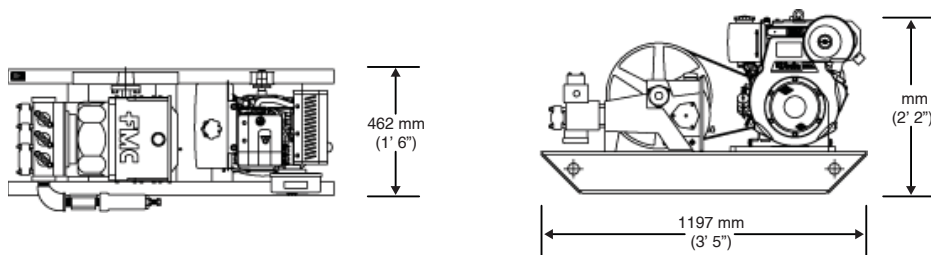
High vol./low pres. 23 gpm @ 950 psi 12.7 hp
Low vol./high pres. 11 gpm @ 1000 psi 6.4 hp



(L09) FLUID SUPPLY PUMP GROUP - DIESEL (OPTIONAL)

Wet Weight = 145 kg (320 lb)

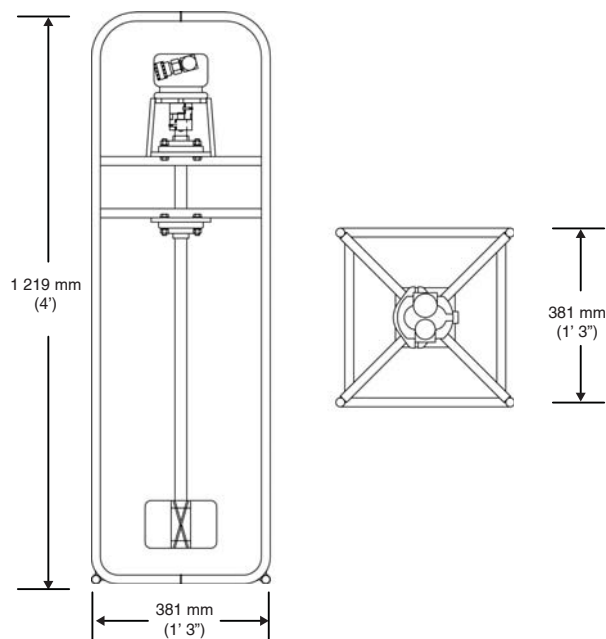
The max. output of the standard 2-speed motor of the L09 is as follows:
High vol./low pres. - 20 gpm @ 300 psi
Low vol./high pres. - 10 gpm @ 800 psi



MUD MIXER ASSEMBLY (OPTIONAL)

Wet Weight = 31 kg (68 lb)

NOTE: Maximum speed of the mud mixer shaft at full flow is 2300 rpm.



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