LM™110 UNDERGROUND CORING DRILL

Technical Overview

BOART LONGYEAR™

LM™110 UNDERGROUND CORING DRILL

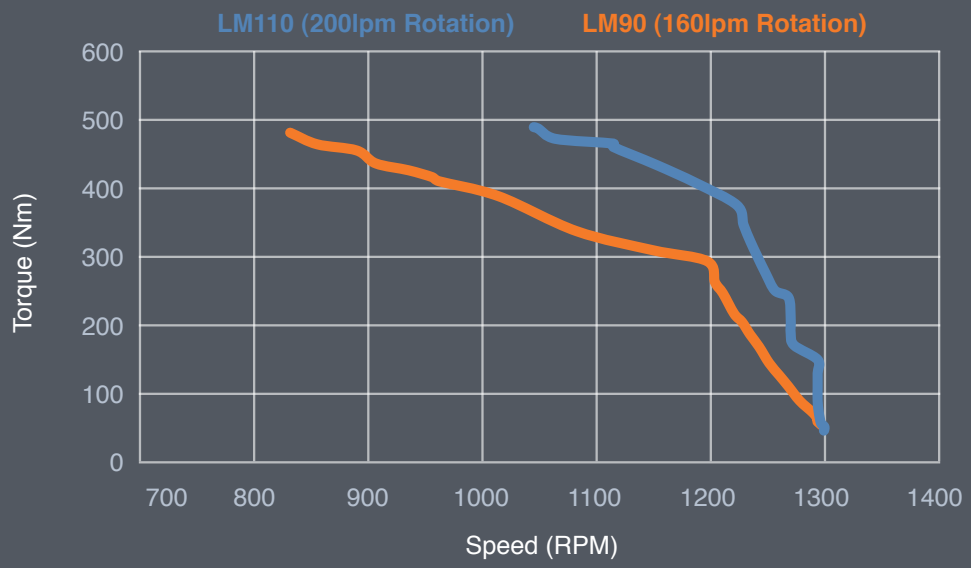
The LM™110 is the most powerful underground diamond coring drill offered by Boart Longyear, suited for deep-hole drilling. Equipped with a 128 kN feed frame, this drill provides high pullback force as well as a fast rod-handling rate, delivering increased productivity.

Safety

Optional Rod Handler - Hands-free making and breaking of joints increases driller and helper safety and reduces operator fatigue.

Productivity

New 110 kW Power Pack Option - Up to 33% more torque available at the drill head for increased drilling productivity.

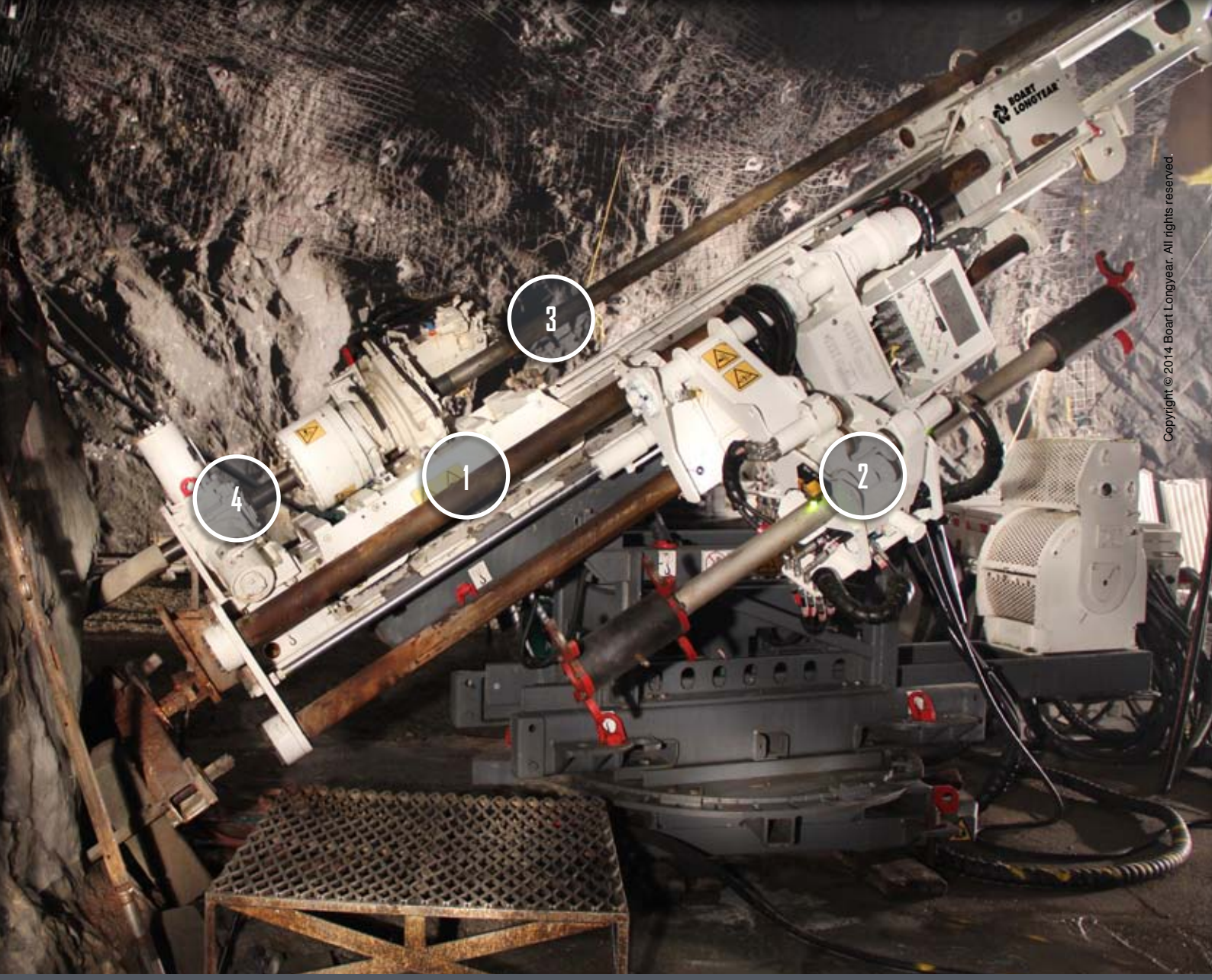


Optional Drill Control Interface (DCI) - Allows unattended drilling, delivering more meters drilled per shift and increased revenue.

Flexibility

Modular Drill Design - Enables tailored drilling packages and easy component upgrades when requirements change.

For more information on the LM™110 scan with a QR code reader on your smart phone.



1 REVERSIBLE FEED CYLINDER

The feed cylinder is reversible which increases up-hole drilling capacity

2 SEMI-AUTOMATED ROD HANDLING (OPTIONAL)

Semi-automated rod handler (optional) makes handling of rods safer and easier

3 HIGH TORQUE BREAKOUT

Automated high torque break out device breaks most rod joints automatically

4 FAIL SAFE ROD CLAMP

Hydraulic open and spring close rod clamp results in fail safe operation

LOAD SENSING HYDRAULICS

Load sensing hydraulics maximize efficiency and reduce heat

PROPORTIONAL CONTROLS

Proportional controls and lock levers provide optimum control of rpm and feed

DIRECT COUPLED FEED FRAME

Direct coupled feed frame results in lower maintenance and smoother feed transmission

LM™110 TECHNICAL INFORMATION

Drill Depth Guidelines						
	Hole Depth			Hole Depth		
Drill Rod	**Metric**			**U.S.**		
	Up	Horizontal	Down	Up	Horizontal	Down
BRQ	1417	1500	1500	4649	4921	4921
NRQ	972	1262	1500	3189	4140	4921
HRQ	595	648	1036	1952	2126	3400

Drill Depth Guidelines with Cylinder Reversed		
	Hole Depth	Hole Depth
Drill Rod	**Metric**	**U.S.**
	Up	Up
BRQ	1500	4921
NRQ	1500	4921
HRQ	1195	3920

The figures in this table are estimates that have been calculated using the applicable pullback capacity of the drill. Actual drilling results may vary and will depend on in-hole tools, subsurface and other environmental conditions, drilling techniques and equipment used.

Drill Specification:		
Feed Frame (1300 Series)	**Metric**	**U.S.**
Feed Stroke	1830 mm	72 in
Max. rated pushing force	63.56 kN @ 28 MPa	14289 lbf @ 4061 psi
Max. rated pulling force	127.69 kN @ 28 MPa	28706 lbf @ 4061 psi
Rated carriage speed	0.70 m/s per complete cycle	2.3 ft/s per complete cycle
Normal rod handling speed	Approximately 15 m/min.*	Approximately 50 ft/minute*
Note	The feed frame is reversible	
"*"	Actual rod handling speed may vary with working conditions	
Chuck and Rod Holder		
	HQ™ Chuck	**PQ™ Rod Holder**
Maximum opening	97.0 mm (3.82 in) Diameter corresponding to the ID of the HQ™ guide bush	125 mm (4.875 in) Diameter corresponding to the ID of the PQ™ guide bush
Type	Closed hydraulically Opened mechanically Automatic synchronization with rod holder	Closed mechanically Opened hydraulically Automatic synchronization with chuck Manual overdrive
Jaws	3 (same as used with chuck)	3 (same as used with chuck)
Max. rated axial holding capacity	85.0 kN* (19110 lbf*)	130 kN* (33750 lbf*)
Max. rated static torsional holding capacity	Forward and reverse rotation 3900 N-m (2870 lbf*)	Forward and reverse rotation 5800 N-m (4255 lbf*)
"*"	At 7 MPa (1015 psi) with new jaws and rods	
HQ™ Drill Head, HI torque		
Forward Rotation		
Chuck Speed	1330 RPM, continuously variable. Speeds will vary with oil type and temperature and are approximate	
Chuck torque output	430 N-m @ 1200 RPM	317 lb-ft @ 1,200 RPM
	1088 N-m @ 500 RPM	802 lb-ft @ 500 RPM
Reverse Rotation		
Chuck Speed	100 RPM, fixed to help prevent rod thread damage	
Chuck Torque output	3920 Nm with break-out device @ 31.0 MPa	2890 lb-ft with break-out device @ 4,496 psi

LM™110 TECHNICAL INFORMATION

Hydrostatic Pumps		
Main Pump	**Metric**	**U.S.**
Type	Variable displacement, axial piston w/pressure compensated load sensing control	
Operating conditions as used on LM™110 drill: Maximum pressure	31 MPa, forward rotation, reverse rotation, rod handling	4500 PSI, forward rotation, reverse rotation, rod handling
Recirculation pump	Oil cooling and charge pump	
Type	Gear, fixed displacement	
Maximum pressure operating conditions as used on LM™110 drill	1-1.5 Bar	14.5-21.8 psi
Normal speed	1490 RPM @ 50 Hz 1790 RPM@ 60 Hz	
Hydraulic tank volume	60 L	15.8 Gal

Wireline Hoist (optional)				
	Metric		**U.S.**	
Type	All hydraulic, with proportional spooling control power up, power down, hydraulically locked in neutral free wheel override, chain driven spooling device			
Line Pull	6 mm	5 mm	6 mm	5 mm
Bare Drum	11.77 kN	9.2 kN	2649 lbf	2068 lbf
Full Drum	3.9 kN	3.1 kN	877 lbf	697 lbf
Line Speed				
Bare Drum	0 - 80 m/min		0 - 262 ft/min	
Full Drum	0 - 240 m/min		0 - 787 ft/min	
Drum Capacity				
5 mm	1500 m		4920 ft	
6 mm	1000 m		3280 ft	
1/4"	895 m		2930 ft	

DIMENSIONS AND WEIGHTS

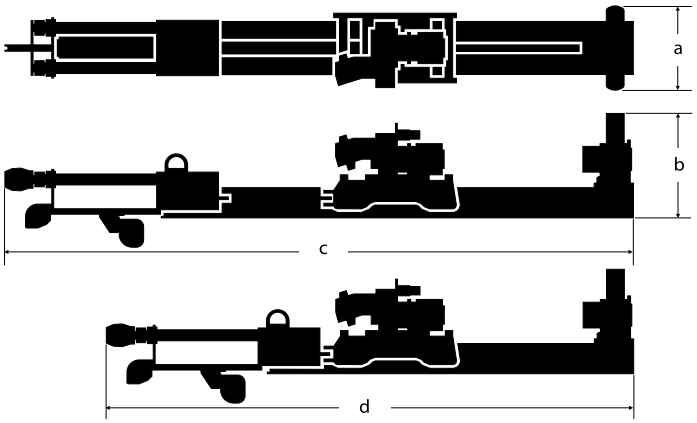
Feed Frame (1300 Series)

Feed Frame
Weight: 1520 kg (3344 lbs)

Rotation Unit w/chuck
Weight: 235 kg (517 lbs)

PQ™ Rod Clamp Assembly
Weight: 170 kg (374 lbs)

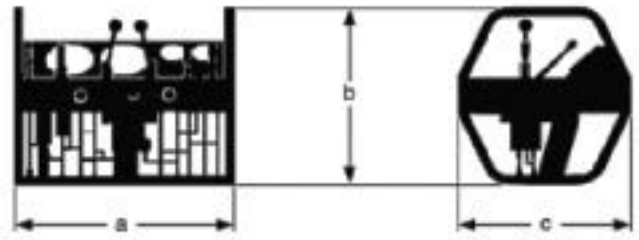
a = 698 mm (27.50 in)
b = 851 mm (33.50 in)
c = 4894 mm (193 in)
Working length
6410 mm (252.50 in)
Working length fully extended
d = 4108 mm (162.75 in)



Control Panel

Weight: 46 kg (101 lbs) w/o hoses
Add 42 kg (92 lbs) for hoses

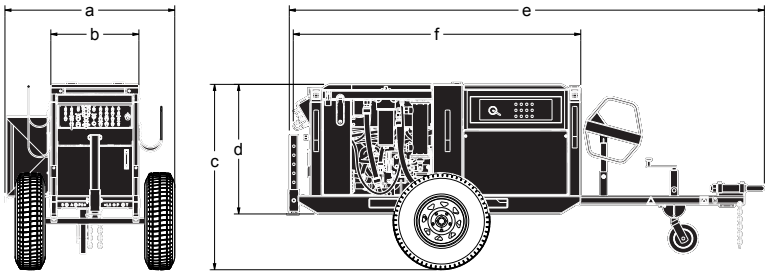
a = 575 mm (23 in)
b = 521 mm (20.50 in)
c = 480 mm (19 in)



Power Pack

Weight: 1712 kg (3774 lbs) Dry
Includes electric motor and starter, but without towing group

a = 1410 mm (55.5 in)
b = 730 mm (29 in)
c = 1540 mm (60.6 in)
d = 1075 mm (42.3 in)
e = 3940 mm (155 in)
f = 2386 mm (93.9 in)



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