

LM™ 90 Modular Core Drill

Technical Data Sheet



November 2009

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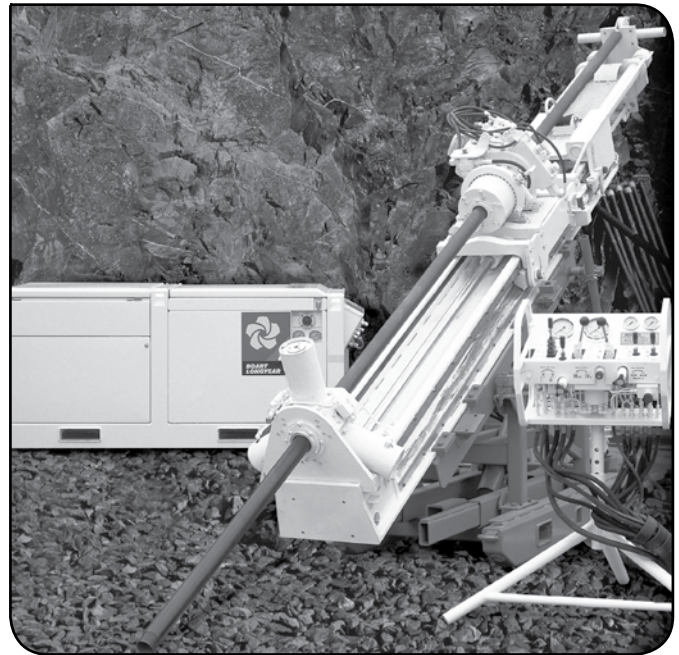
PRODUCT OVERVIEW

The LM™ 90 drill offers a very flexible platform that can be mix and matched to ensure the rig is set up specifically to meet the end users needs.

With your choice of power pack, feed frame, rotation unit and rod clamp you can be sure to put in as much power into the smallest footprint possible.

FEATURES:

- Automatic, high torque rod joint break out
- Load sensing hydraulic circuitry to maximize power to the bit
- 1300 series feed frame designed with conventional drilling in mind but can be set up for wire line easily
- Reversible feed cylinder for increased depth capacity in up hole applications
- Bent axis, variable displacement hydraulic motor provides automatic speed adjustment so that maximum hydraulic power can be used across a wide range of speeds
- Spring close foot clamp
- 360° turntable
- Dumping feed frame



DRILLING DEPTH GUIDELINES

The figures in these tables have been calculated, based on field experiences, and may be reasonably expected. Actual

drilling capacity will depend on in-hole tools, conditions, drilling techniques and equipment used.

DRILL ROD/CORE BARREL	HOLE DEPTH (METERS)			HOLE DEPTH (FEET)		
	Up	Horizontal	Down	Up	Horizontal	Down
ARQTK	1 000	2 000	3 200	3,281	6,562	10,499
BQ	605	1 200	1 850	1,985	3,937	6,070
NQ	400	930	1 400	1,312	3,051	4,593
HQ	230	550	800	755	1,804	2,625

DRILLING DEPTH GUIDELINES WITH CYLINDER REVERSED:

DRILL ROD/CORE BARREL	HOLE DEPTH (METERS)	HOLE DEPTH (FEET)
	Up	Up
AQ	2 400	7,874
BQ	1 480	4,856
NQ	1 000	3,281
HQ	640	3,000

Note: depth capacity includes allowance for force required to break core using 10 MPa rock strength.

* ARQTK capacity shown for comparison purposes only. It is not recommended drilling practice to drill over 1 500 m ARQTK depth.

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TECHNICAL SPECIFICATIONS

	METRIC SYSTEM	U.S. CUSTOMARY SYSTEM
FEED FRAME (1300 SERIES)		
Feed stroke	1,830 mm	72 in
Max. rated pushing force	70.3 kN @ 31 MPa	15,700 lbf @ 4,500 PSI
Max. rated pulling force	141.3 kN @ 31 MPa	31,600 lbf @ 4,500 PSI
Rated carriage speed	0.70 m/s per complete cycle	3 ft/s per complete cycle
Normal rod handling speed	Approx. 15 m/min. (actual rod handling speed may vary with working conditions)	Approx. 50 ft/min. (actual rod handling speed may vary with working conditions)
Note	The feed frame is reversible	
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 w/rod holder	Closed mechanically Opened hydraulically Automatic synchronization with chuck Manual overdrive
Jaws	3 (same as used w/chuck)	3 (same as used w/chuck)
Max. rated axial holding capacity	85.0 kN* (19,110 lbf*)	130 kN* (33,750 lbf*)
Max. rated static torsional holding capacity	Forward and reverse rotation 3,900 N-m (2,870 lbf)*	Forward and reverse rotation 5,800 N-m (4,255 lbf)*
<i>*at 7 MPa (1,015 PSI) with new jaws and rods.</i>		
HQ DRILL HEAD, HI TORQUE		
Forward Rotation		
Chuck Speed	1,330 RPM continuously variable. Speeds will vary with oil type and temperature are only approximate	
Chuck torque output	371 N-m @ 1,250 RPM	272 lb-ft @ 1,250 RPM
	1,030 N-m @ 500 RPM	757 lb-ft @ 500 RPM
Reverse Rotation		
Chuck Speed	100 RPM, Fixed to help prevent rod thread damage	
Chuck torque output	3,770 Nm with break-out device @ 28.5 MPa	2,780 lb-ft with break-out device @ 28.5 MPa

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HYDROSTATIC PUMPS		
Main Pump	All drill functions	
Type	Variable displacement, axial piston w/pressure compensated load sensing control	
Manufacturer	Rexroth (Hydromatik Gmbh)	
Operating conditions as used on LM75 drill: Maximum pressure	31 MPa, forward rotation, reverse rotation and rod handling	4,500 PSI, forward rotation, reverse rotation and rod handling
Recirculation pump	Oil cooling and charge pump	
Type	Gear, fixed displacement	
Manufacturer	Rexroth (Hydromatik Gmbh)	
Maximum pressure operating conditions as used on LM90 drill:	1-1.5 Bar	14.5-21.8 PSI
Normal speed	1,490 RPM @ 50 Hz 1,790 RPM @ 60 Hz	
Hydraulic tank volume	60 L	15.8 US Gal.
WIRELINE HOIST (OPTIONAL)		
Type	All hydraulic, with proportional spooling control Power up, power down, hydraulically locked in neutral Free wheel override, chain driven spooling device.	
Line Pull		
Bare Drum	11.77 kN	2,649 lb
Full Drum	4.51 kN	1,015 lb
Line Speed		
Bare Drum	0 - 100 m/min	328 ft/min
Full Drum	0 - 254 m/min	833 ft/min
Drum Capacity		
5 mm	1400 m	4,600 ft
6 mm	1000 m	3,280 ft
1/4"	895 m	2,930 ft

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DIMENSIONS AND WEIGHTS*

FEED FRAME (1300 SERIES)

Feed Frame

Weight: 15,200 kg (3,344 lbs)

Rotation Unit w/chuck

Weight: 235 kg (517 lbs)

PQ rod clamp ass'y

Weight: 170 kg (374 lbs)

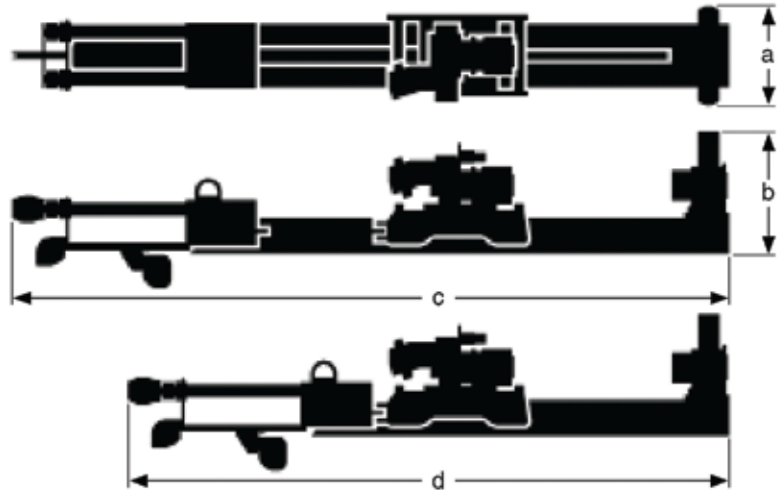
a = 698 mm (27.50 in)

b = 851 mm (33.50 in)

c = 4894 mm (193.00 in)
working length

610 mm (252.50 in)
working length fully extended

d = 4108 mm (162.75 in)



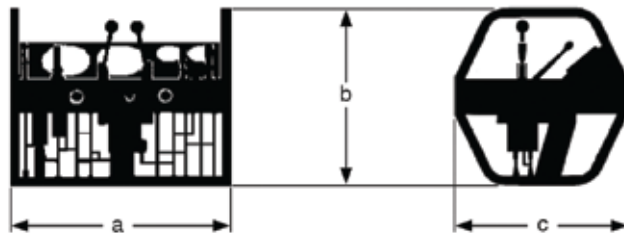
CONTROL PANEL

Weight: 46 kg (101 lbs) without hoses
Add 42 kg (92 lbs) for hoses

a = 575 mm (23.00 in)

b = 521 mm (20.50 in)

c = 480 mm (19.00 in)



POWER PACK

Weight: 1,520 kg (3,344 lbs)
inc. electric motor and starter, but
without towing group

a = 1,318 mm (52.00 in)

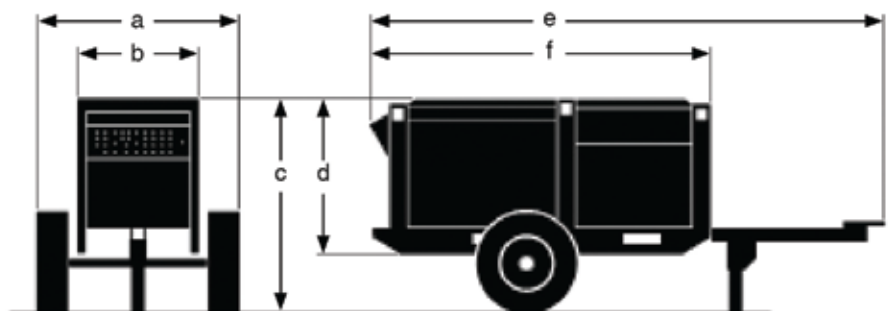
b = 730 mm (29.00 in)

c = 1,526 mm (60.00 in)

d = 1,033 mm (41.00 in)

e = 3,893 mm (153.25 in)

f = 2,230 mm (87.75 in)



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