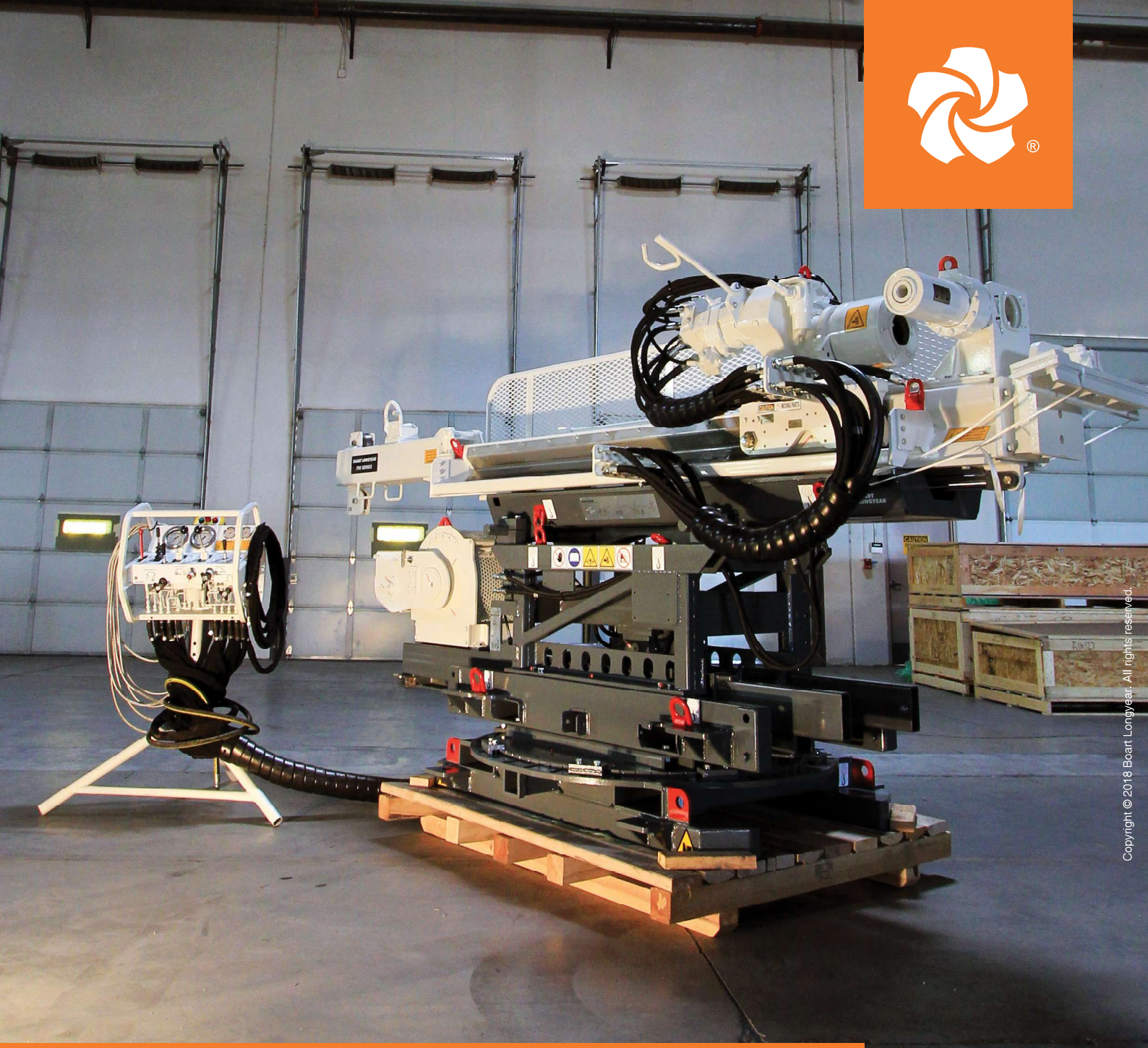


LM™75 UNDERGROUND CORING DRILL

Technical Overview

BOART LONGYEAR™

LM™75 UNDERGROUND CORING DRILL

The LM™75 is a mid-sized underground diamond coring drill rig suited for drilling medium to deep holes.

Equipped with a 70kN feed frame, this drill provides high pullback force as well as a relatively quick rod-handling rate. The feed frame is available in three different sizes to suit overall operating conditions.

It is modular in design with a number of options that make it easy to tailor to specific needs and to upgrade when requirements change. With the assistance of a positioner and a turntable, the drill is capable of drilling holes in all angles, from vertically up to vertically down. The drill uses an electric motor (a diesel engine is optional) to power the hydraulics on the machine. The drill can be paired with an optional rod handler which reduces operator fatigue and can improve safety and productivity.

1 LOAD SENSING HYDRAULICS

Load sensing hydraulics maximize efficiency and reduce heat

2 PROPORTIONAL CONTROLS

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

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

5 DIRECT COUPLED FEED FRAME

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

SEMI-AUTOMATED ROD HANDLING (OPTIONAL - NOT PICTURED)

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

TECHNICAL INFORMATION

Drill Depth Guidelines						
	Hole Depth			Hole Depth		
Drill Rod/Core Barrel	Metric			U.S.		
	Up	Horizontal	Down	Up	Horizontal	Down
ARQ™TK	860	1500	1500	2820	4920	4920
BQ™	450	1500	1170	1500	4920	3840
NQ™	280	1020	850	920	3360	2800
HQ™	140	520	510	460	1710	169
Note	Depth capacity includes allowance for force required to break core using 5 MPa rock strength					

Drill Specification:		
Feed Frame (700 Series)	Metric	U.S.
Feed Stroke	1830 mm	72 in
Max. rated pushing force	53.9 kN @ 28.5 MPa	12080 lbf @ 4130 psi
Max. rated pulling force	81.4 kN @ 28.5 MPa	18250 lbf @ 4130 psi
Rated carriage speed	0.70 m/s per complete cycle	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)	2 (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	325 N-m @ 1250 RPM	329 lb-ft @ 1250 RPM
	900 N-m @ 500 RPM	662 lb-ft @500 RPM
Reverse Rotation		
Chuck Speed	100 RPM, fixed to help prevent rod thread damage	
Chuck Torque output	3770 Nm with break-out device @ 28.5 MPa	2780 lb-ft with break-out device @ 28.5 MPa
Hydrostatic Pumps		
Main Pump	**Metric**	**U.S.**
Feed Stroke	All drill functions	
Manufacturer	Rexroth (Hydromatiik Gmbh)	
Operating conditions as used on LM75™ drill: Maximum pressure	28.5 MPa, forward rotation, reverse rotation, rod handling	4130 PSI, forward rotation, reverse rotation, rod handling
Recirculation pump	Oil cooling and charge pump	
Type	Gear, fixed displacement	
Manufacturer	Rexroth (Hydromatick Gmbh)	
Maximum pressure operating conditions as used on LM75™ drill	1-1.5 Bar	14.5-21.8 psi
Normal speed	1480 RPM @ 50 Hz 1780 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		
Bare Drum	11.77 kN	2649 lb
Full Drum	4.51 kN	1015 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	4600 ft
6 mm	1000 m	3280 ft
1/4"	895 m	2930 ft

DIMENSIONS AND WEIGHTS

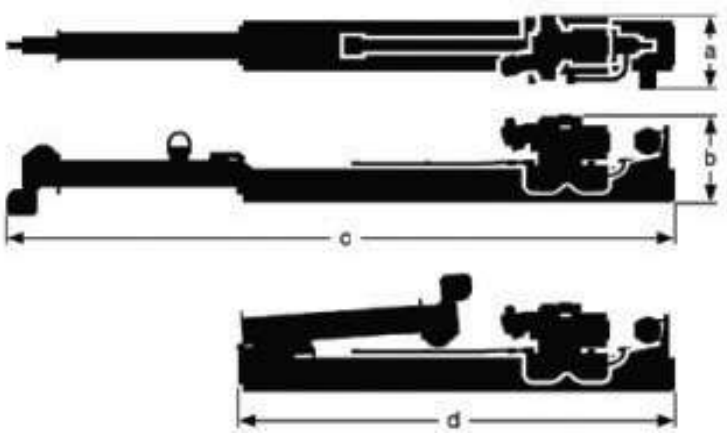
Feed Frame (700 Series)

Feed Frame
Weight: 960 kg (2112 lbs)

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

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

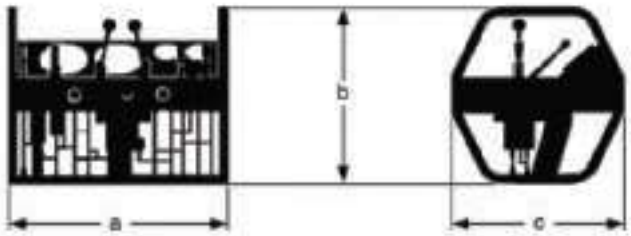
a = 698 mm (27.50 in)
b = 801 mm (31.50 in)
c = 4276 mm (168.25 in)
d = 3071 mm (121 in)



Control Panel

Weight: 40 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: 1400 kg (3080 lbs)
Includes electric motor and starter, but without towing group

a = 1318 mm (52 in)
b = 730 mm (29 in)
c = 1526 mm (60 in)
d = 1033 mm (41 in)
e = 3893 mm (153.25 in)
f = 2230 mm (87.75 in)