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# LM™ 55 UNDERGROUND CORING DRILL

Technical Overview

## LM™55 MODULAR CORE DRILL

The LM™55 is a compact underground diamond coring drill rig suited for drilling short holes. The rig is capable of drilling with conventional or wireline drilling methods.

Equipped with a 40kN feed frame, the LM55 drill provides high pullback force and a relatively quick rod-handling rate. The feed frame is available in two different sizes to suit overall operating conditions.

Its compact size and power make it a versatile drill ideal for performing in locations where space is at a premium. 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 compact 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 to power the hydraulics on the machine.





### 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
ARQTK	500	950	850	1640	3117	2789
BRQTK	360	700	500	1870	1640	1804
BQ/BQ-U	320	580	460	1050	1903	1509
NQ/NQ-U	180	300	260	591	1706	853
HQ/HQ-U	80	140	60	262	459	197
Note	Depth capacity includes allowance for force required to break core using 10 MPa rock strength.					
The figures in this table has 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 Specification:		
Feed Frame (400 Series)	Metric	U.S.
Feed Stroke	1700 mm	3.6 ft
Max. rated pushing force	42 kN @ 26 MPa	9440 lbf @ 3770 psi
Max. rated pulling force	40.3 kN @ 28.5 MPa	9060 lbf @ 3770 psi
Rated carriage speed	0.5 m/s per complete cycle	1.64 ft/s per complete cycle
Normal rod handling speed	Approximately 15 m/min.	Approximately 50 ft/minute
Note	Feed cylinder cushioned at both ends. dual load holding valves	

Chuck and Rod Holder		
	BQ™ Chuck	BQ™ Rod Holder
Maximum opening	60.0 mm (2.86 in) Diameter corresponding to the ID of the HQ™ guide bush	60.0 mm (2.86 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 (with tungsten carbide inserts)	2 (with tungsten carbide inserts)
Max. rated axial holding capacity	Forward and reverse rotation 75.0 kN* (16600 lbf*)	Forward and reverse rotation 60.0 kN* (13300 lbf*)
Max. rated static torsional holding capacity	520 N-m (383 lbf*)	1670 N-m (1,230 lbf*)
**11	At 7 MPa (1015 psi) with new jaws and rods	

<b>Chuck and Rod Holder</b>		
	<b>HQ Chuck</b>	<b>HQ Rod Holder</b>
Maximum opening	97.0 mm (3.82 in) Diameter corresponding to the ID of the HQ guide bush	97.0 mm (3.82 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 (with tungsten carbide inserts)	2 (with tungsten carbide inserts)
Max. rated axial holding capacity	80.0 kN* (17985 lbf*)	80.0 kN* (17985 lbf*)
Max. rated static torsional holding capacity	Forward and reverse rotation 3900 N-m (2870 lbf*)	Forward and reverse rotation 3900 N-m (2870 lbf*)
**	At 7 MPa (1015 psi) with new jaws and rods	

<b>HQ™ Drill Head</b>		
<b>Forward Rotation</b>	<b>Metric</b>	<b>U.S.</b>
Chuck Speed	1680 RPM, continuously variable. Speeds will vary with oil type and temperature are only approximate	
Chuck torque output	800 N-m @ stall	590 lb-ft @ stall
Reverse Rotation		
Chuck Speed	80 RPM, fixed to help prevent rod thread damage	
Chuck torque output	1825 N-m	1350 lb-ft

<b>HQ™ Drill Head, HI Torque</b>		
<b>Forward Rotation</b>	<b>Metric</b>	<b>U.S.</b>
Chuck Speed	1330 RPM, continuously variable. Speeds will vary with oil type and temperature are only approximate	
Chuck torque output	1600 N-m @ stall	1180 lb-ft @ stall
Reverse Rotation		
Chuck Speed	100 RPM, fixed to help prevent rod thread damage	
Chuck torque output	3545 N-m	2615 lb-ft

# TECHNICAL INFORMATION

Hydrostatic Pumps		
Main Pump	All drill functions	
Type	Variable displacement, axial piston w/pressure compensated load sensing control	
Manufacturer	Rexroth (Hydromatik Gmbh)	
Maximum pressure operating conditions as used on LM55 drill:	28.5 MPa, forward rotation, reverse rotation and rod handling	4,130 PSI, forward rotation, reverse rotation and rod handling
Recirculation Pump	Oil cooling and charge pump	
Type	Gear, fixed displacement	
Manufacturer	4.51 kN	1015 lb
Maximum pressure operating conditions as used on LM55 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	1,400 m 4,600 ft
	6 mm	1,000 m 3,280 ft
	1/4"	895 m 2,930 ft

# DIMENSIONS AND WEIGHTS

## Feed Frame (400 Series)

### Feed Frame

Weight: 650 kg (1,430 lbs)

### Rotation Unit w/chuck

Weight: 235 kg (517 lbs)

### HQ Rod Clamp Assembly

Weight: 75 kg (165 lbs)

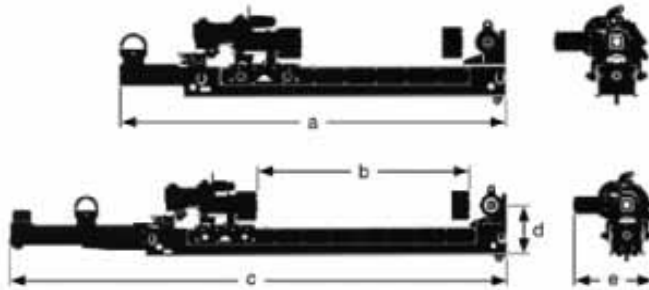
a = 2,805 mm (110.50 in)

b = 1,700 mm (67.00 in)

c = 3,493 mm (137.50 in)

d = 531 mm (21.00 in)

e = 748 mm (28.50 in)



## Control Panel

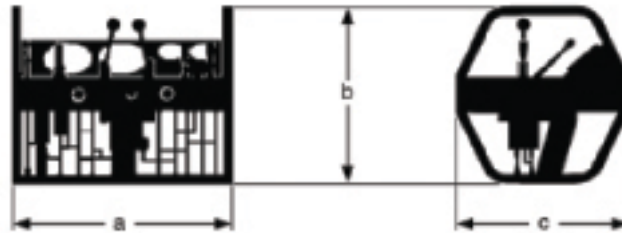
Weight: 46 kg (101 lbs) w/o hoses

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: 1,400 kg (3,080 lbs)

Includes electric motor and starter, but without towing group

a = 1,318 mm (52.00 in)

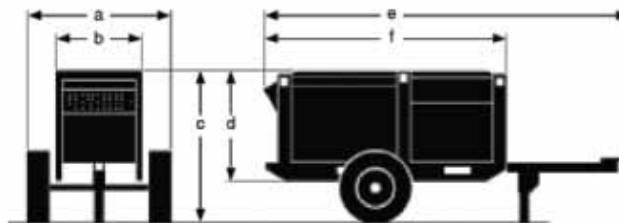
b = 730 mm (29.00 in)

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.



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## MINING AND EXPLORATION DRILLING PRODUCTS



Diamond Products



Genuine Q™ Wireline  
Tooling



Surface Coring Rigs