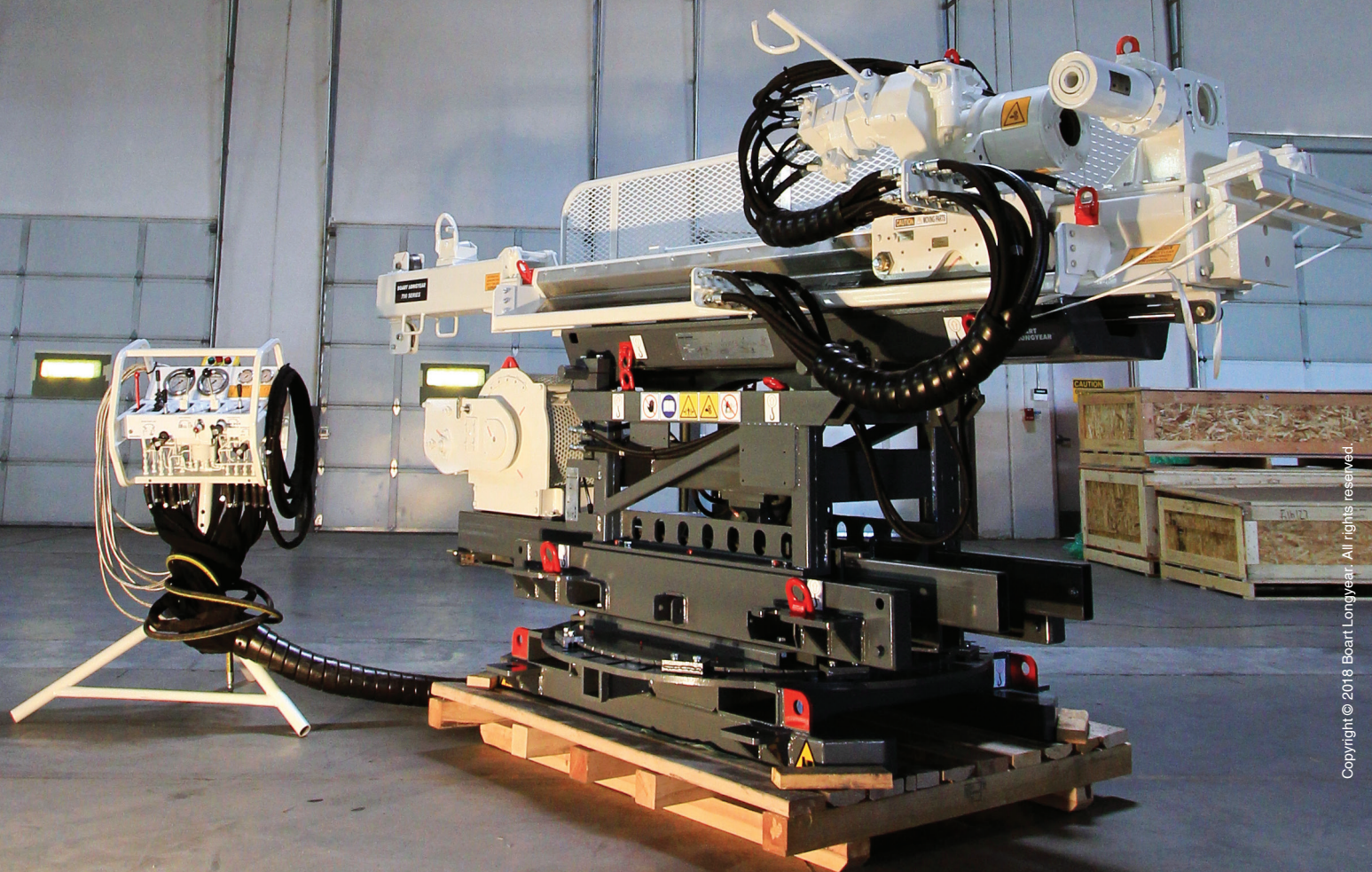




# LM™75 UNDERGROUND CORING DRILL

## Technical Overview

## LM<sup>TM</sup>75 UNDERGROUND CORING DRILL

The LM<sup>TM</sup>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 |                                                                                              |            |      |            |            |      |
|------------------------|----------------------------------------------------------------------------------------------|------------|------|------------|------------|------|
| Drill Rod/Core Barrel  | Hole Depth                                                                                   |            |      | Hole Depth |            |      |
|                        | 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)<br>Diameter corresponding to the ID of the HQ™ guide bush              | 125 mm (4.875 in)<br>Diameter corresponding to the ID of the PQ™ guide bush                          |
| Type                                         | Closed hydraulically<br>Opened mechanically<br>Automatic synchronization with rod holder | Closed mechanically<br>Opened hydraulically<br>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<br>3900 N-m (2870 lbf*)                                     | Forward and reverse rotation<br>5800 N-m (4255 lbf*)                                                 |
| **                                           | At 7 MPa (1015 psi) with new jaws and rods                                               |                                                                                                      |

| <b>HQ™ Drill Head, HI torque</b>                              |                                                                                                     |                                                            |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| <b>Forward Rotation</b>                                       |                                                                                                     |                                                            |
| 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                                        |
| <b>Reverse Rotation</b>                                       |                                                                                                     |                                                            |
| 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                |
| <b>Hydrostatic Pumps</b>                                      |                                                                                                     |                                                            |
| <b>Main Pump</b>                                              | <b>Metric</b>                                                                                       | <b>U.S.</b>                                                |
| Feed Stroke                                                   | All drill functions                                                                                 |                                                            |
| Manufacturer                                                  | Rexroth (Hydromatik 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 |
| <b>Recirculation pump</b>                                     | Oil cooling and charge pump                                                                         |                                                            |
| Type                                                          | Gear, fixed displacement                                                                            |                                                            |
| Manufacturer                                                  | Rexroth (Hydromatic 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<br>1780 RPM @ 60 Hz                                                                |                                                            |
| Hydraulic tank volume                                         | 60 L                                                                                                | 15.8 Gal                                                   |

| <b>Wireline Hoist (optional)</b> |                                                                                                                                                           |             |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
|                                  | <b>Metric</b>                                                                                                                                             | <b>U.S.</b> |
| 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

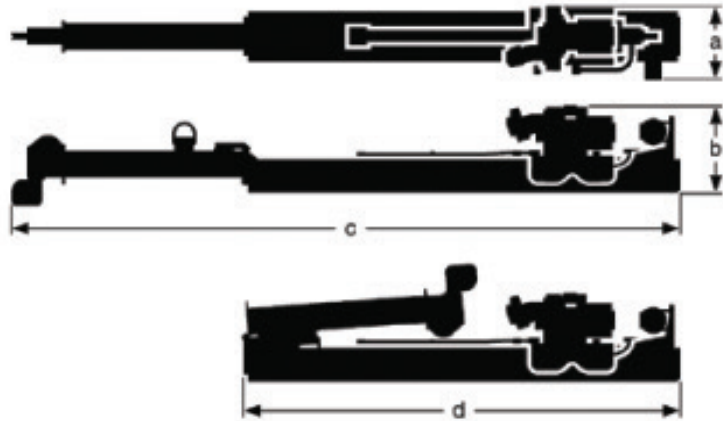
Weight: 170 kg (374 lbs)

a = 698 mm (27.50 in)

b = 801 mm (31.50 in)

c = 4276 mm (168.25 in)

d = 3071 mm (121 in)



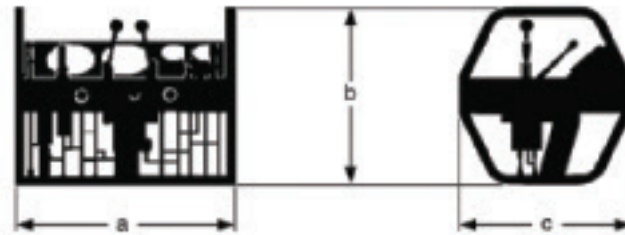
## Control Panel

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)

