



# **BOART LONGYEAR**

## **LM Modular Diamond Drill System**

***Powerful, efficient underground drill system. Featuring automated, high torque rod joint break-out for increased productivity.***



# LM Modular Diamond Drill System

**Boart Longyear's LM Modular Diamond Drill System is used extensively around the world under varying climate conditions. The LM Drill System provides high performance deep hole drilling with reliability and economical maintenance costs.**

## Benefits

- Easily tailored to requirements
- Mix and match
- Easy to upgrade when requirements change
- Interchangeability of major components
- Fast and efficient conventional or heavy duty wireline
- Exceptionally economical maintenance costs

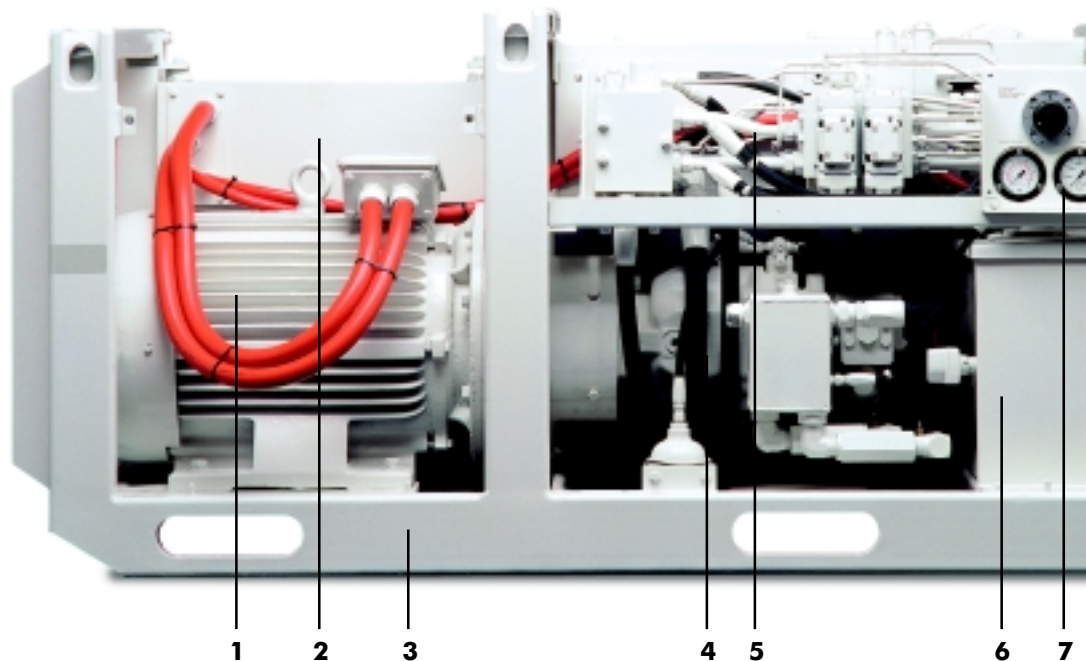
## Power Packs

The LM Drill System is available in 45kW, 55kW or 75kW input power to suit your specific requirements. The LM modular system offers the choice of chain coupled (on some models) or direct coupled feed systems.

Logic controlled, automated rod handling; load sensing hydraulic circuitry for maximum power to the bit; cushioned rod feeding; compact size; ease of operation and simplified maintenance and service are all standard on all LM power packs.

Inbuilt hydraulic circuitry in the LM Power Pack allows for the connection of a full range of options to suit your particular drilling requirements. Each option has been carefully designed to complement the LM system, maintaining productivity and safety at all times.

- 1 45kW, 55kW or 75kW electric motor
- 2 Electric starter enclosure
- 3 Compact, sturdy steel frame with skid base
- 4 Load sensing hydraulic pump
- 5 Pilot signal controlled hydraulic circuit
- 6 Hydraulic oil tank
- 7 Integrated circuit monitoring equipment
- 8 Hose bulkhead



## Feedframe Options

Boart Longyear's Diesel Power Pack option has the proven LM drill dependability and service life. The on-board power supply eliminates the need for electrical substations or generator sets and with the integrated power supply it provides work lights as well.



Boart Longyear's optional Diesel Power

### 400 Series

The 400 feedframe is ideally suited for conventional drilling, but easily capable of drilling wireline should the need arise.

The standard feedframe, coupled to your choice of powerpack, is one of the smoothest and fastest rod handling unit in the industry. The standard configuration includes a BQ capacity Rotation Unit and Rod Clamp (HQ is optional).

The hydraulically cushioned cylinder allows fast rod tripping speeds over the 1.8 metre (6 ft) feed length.

The feedframe is ideal for use in confined spaces. If space is restricted a shortened version of the standard feedframe, with a 1 metre (3 ft) feed stroke, is available.



The 400 feedframe is ideal for conventional drilling and easily capable of drilling wireline.

### 700 Series

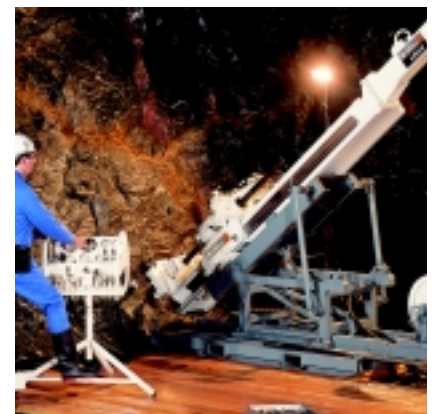
The 700 feedframe has the capacity to efficiently drill a variety of depths, suited to both wireline and conventional drilling.

The 700 Chain Coupled feedframe and the 700 Direct Coupled feedframe share many features. Both are built from the same heavy-duty 'V' profile for strength and rigidity and are equipped with HQ capacity Rotation Units (HQ High Torque optional) and HQ fail-safe Rod Clamps (PQ optional).

The single ended cylinder in the 700 Direct Coupled feedframe is attached to the Rotation Unit carriage by a load transfer linkage.

The 700 Chained Coupled feedframe uses a double ended cylinder design with a single, leaf feed chain running over sheaves, this provides maximum feed stroke for minimum frame length.

Feed cylinders in both frames are cushioned for smooth deceleration of heavy rod strings. Full advantage has been taken of the high oil flow rate to maximise rod handling speed.



The 700 feedframe has the capacity to efficiently drill a variety of depths.

Oil conditioning equipment is located in a convenient service bay on the electric starter side of the power pack. Integrated circuit monitoring equipment enables simplified, on-site pressure checking and trouble shooting.

### 1300 Series

The 1300 feedframe has the power and features to provide high performance deep hole drilling.

The heavy-duty 'V' profile gives the feedframe strength and rigidity to perform under high loads associated with deep hole drilling. Manual handling of the inner tube assembly is reduced, as the 1300 frame incorporates extensions to allow full inner tube removal (site permitting) with the assistance of the wireline winch.

This feedframe's standard configuration is a HQ High Torque Rotation Unit and PQ Rod Clamp. Other options are also available.

The 1300 has been designed with an unique reversible linkage arrangement which allows the push/pull force to be reversed for deep up-hole drilling.



The 1300 feedframe provides high performance deep hole drilling.

### Technical Support

Pressure checking and troubleshooting of the hydraulic circuit are simplified by integrated monitoring equipment. Circuit faults can be systematically isolated without opening or contaminating trouble-free sections or having expensive test equipment on site.

A comprehensive operations and service manual which clearly identifies all service maintenance and troubleshooting procedures is provided.

Technical support is available worldwide to assist with the commissioning of new drills, training of operators and service personnel, supply of genuine spare parts and to demonstrate how to achieve the maximum performance from Boart Longyear products.



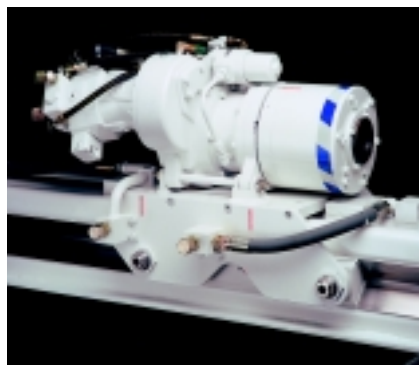
The LM's deep hole capacity is shown graphically above. The chart shows the relative depth capacity for the Boart Longyear LM family of diamond drills.

Refer to techdata Sheets for Technical Specifications on feedframes and rotation units.

## Rotation Units

The BQ Rotation Unit can accommodate up to BQ size rods and corebarrels. The higher RPM available is ideal for conventional or smaller diameter wireline drilling systems.

The standard HQ Rotation Unit permits HQ size rods and corebarrels to pass through the head, making it the logical choice for larger wireline systems, surface and geotechnical applications. The HQ High Torque Rotation Unit has been engineered to provide the high rotational torque required for high performance deep hole drilling.



Rotation Unit

Boart Longyear's Rotation Units use a bent axis, variable displacement hydraulic motor which provides automatic speed adjustment so that maximum hydraulic power can be used over a wide speed range. The smooth operation and resultant high penetration rates promote longer core runs and extended bit life. Rotation speed and torque can be regulated from the control panel.

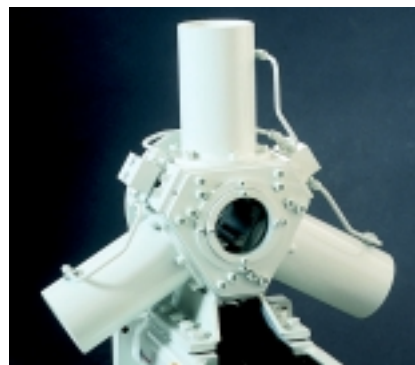
The Rotation Unit readily hinges away from the centreline of the drill hole to assist with the handling of large diameter casing and standpipes.

All Rotation Units are fitted with Boart Longyear's patented rod break-out device for simple, single lever control and automated thread breaking. Elimination of the need to manually break rods greatly improves rod handling efficiency and shortens the rod handling cycle.

## Fail-safe Rod Clamps

Spring closed, hydraulically opened rod clamps are available in either BQ, HQ or PQ capacity. Gripping pressure is maintained by high capacity Belleville springs acting on tungsten carbide insert jaws.

The hydraulic circuitry of the LM is designed so that the rod string is always safely held by either the Rod Clamp or the Chuck. Accidental loss of hydraulic pressure results in the immediate closing of the Rod Clamp. Replaceable hardened rod guide bushings reduce vibration and maintain hole alignment.



The PQ Tri-lobe Rod Clamp is one of the options available on Boart Longyear's feedframes. Gripping pressure is maintained by high capacity springs acting on three tungsten carbide inserted jaws.



HQ Rod Clamp

## Control Panel

The Control Panel enhances operator safety in several ways. The pilot oil system means that the driller is not surrounded by high pressure hoses while operating the controls.

The clear, logical layout of controls and gauges at convenient operating height improves operator comfort and minimises potential operating errors. Combined with this the sequencing logic built into the powerpack ensures that the driller has control of drilling operations at all times.

Control panel lever movements are directly proportional to resulting operating speeds. This gives the driller precise control and the ability to take advantage of any change in the conditions to maximise production and bit life.



The clear, logical layout of controls and gauges ensures that the driller has control of drilling operations at all times.

Lightweight, compact and robust, the control panel is easily moved and set up. The driller has precise control of all functions via proportional controls.

## Optional Features

- Wireline Hoist
- Spooling Device
- Wireline Extension
- Wireline Cable (6mm or 5mm)
- Wireline Sheave Assembly
- Power Pack Towing Group
- Feedframe Positioner
- Feedframe Positioner Towing Group
- Water Pump - 712, 520 or 535 Hydraulic or Electric
- Water Pump Control Panel Kit
- Hose Hook Set
- Fluorescent Light (32V 40W)
- Remote Stop/Start Unit
- Unattended Drilling Monitor (UDM)
- Rod Handler
- Alternative voltage and hertz are available including dual voltage starters
- Custom designed to suit your requirements
- A LMC version is available for the coal industry

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All photographs are representations only.  
For complete product specifications and a  
list of system accessories please refer to the  
Boart Longyear Tech Data sheets or contact  
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Centre.

This information is also available on the  
Internet at [www.boartlongyear.com](http://www.boartlongyear.com)

