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LC™ 36 REVERSE CIRCULATION DRILL (KWL 700)

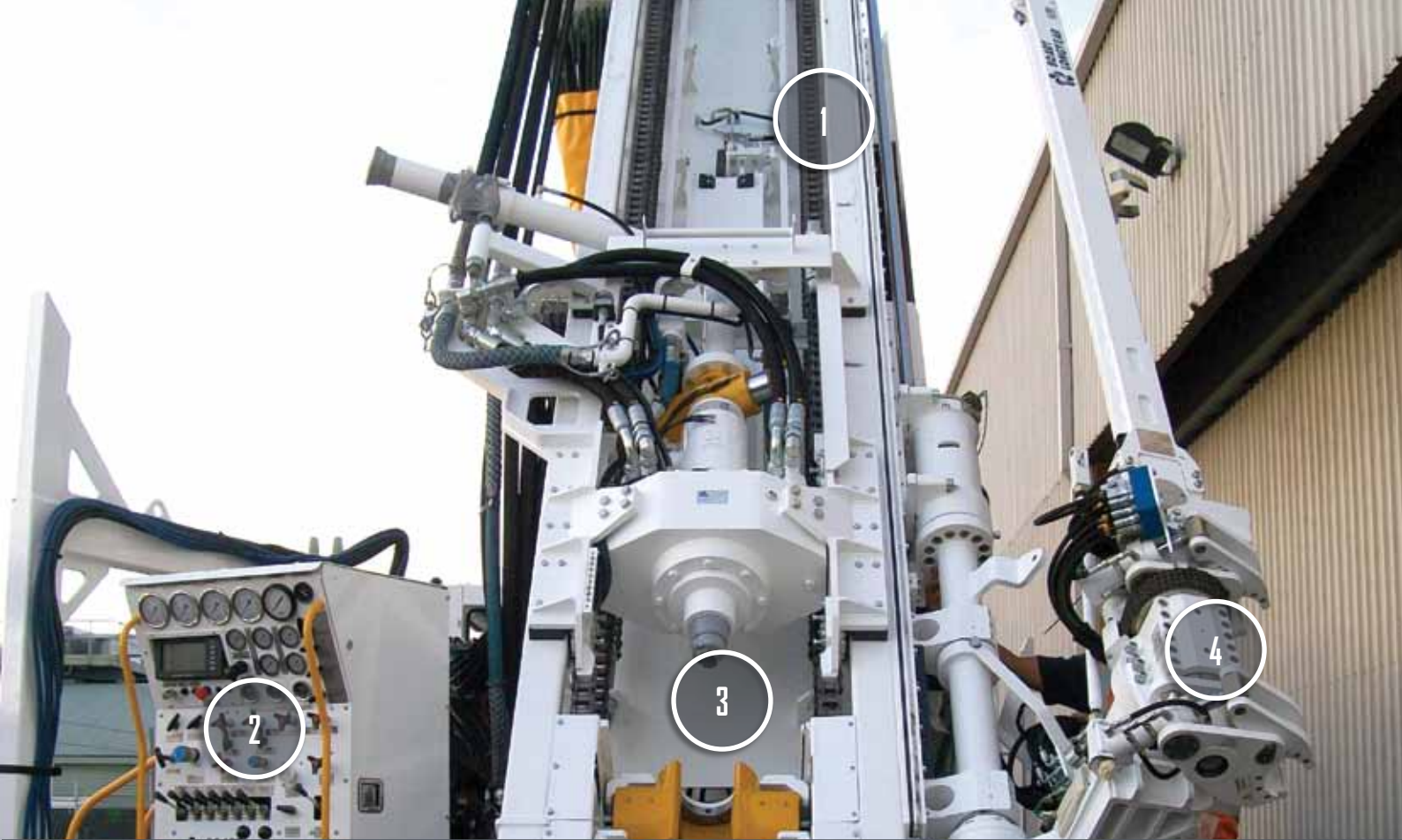
Technical Overview

LCTM 36 REVERSE CIRCULATION DRILL

The LCTM36 RC (Reverse Circulation) drill is the largest of all Boart LongyearTM drills. Its robust design features 36,000 kg (79,364 lb) of pull back, a 38 m³/min at 34.5 bar (1,350 cfm at 500 psi) compressor, along with the highest quality hydraulic pumps and motors available in order to create a powerful and reliable drill that can cope with the toughest conditions. This rig delivers operational oil flows at only 1500 rpm decreasing wear and fuel consumption, while improving reliability.

The LC36 also features the most versatile RC Rod Handler on the market.





1 CHAIN OVER CYLINDER HEAD TRAVERSE

Robust design with fast pull back for high productivity

2 EXTENDABLE OPERATOR CONSOLE

Features an advanced ergonomic layout and position

3 RC BREAKOUTS, 4.5 INCH AIR DRILL AUTO BREAKOUTS

Increased safety by eliminating the need for auxiliary tooling to break rod joints and tooling

4 BLY RC ROD HANDLER

Fail-safe hands-free rod handling and flexible pick up positions improve operator safety.

5 JIB BOOM

330° travel & 750 kg capacity ensures on site versatility, from mounting cyclones and handling rods to the removal of the acoustic enclosure.

6 VEE PACK COOLER

Disperses hot air vertically for superior cooling capacity

7 ACOUSTIC ENCLOSURE

Lowers operating noise levels



TECHNICAL INFORMATION

	Capacity	
RC Rod - 114.3 mm (4.5 in)	Metric	U.S.
Depth	775 m	2542.7 ft
Retract Force (max)	36,000 kg	79,364 lb
Retract Speed (max)	930 mm/sec	36.6 in/sec
Rapid Push Down Force	14,000 kg	29,823 lb
Rapid Push Down Speed	930 mm/sec	36.6 in/sec
Oil Supply	765 lpm	202 gpm
Engine Speed	1600 to 1800 rpm max	

Traverse Actuation		
	Metric	U.S.
Head Traverse Length	8 m	26.25 ft
Retract Speed (Fine Feed)	0.12 m/sec	4.7 in/sec
Fine Feed Control	Infinite adjustment - feed down, hold back, feed up	
Fine Feed Pull Down Force	13,333 kg	29,373 lbs
Fine Feed Speed	0.2 m/sec	7.87 in/sec
Chain Adjuster (Head alignment)	100 mm (3.94 in) adjustment	

Rotation Drive Head		
	Metric	U.S.
Gears	Hardened and ground spur gears	
Spindle Bore	75 mm	2.95 in
Drive Motor	Dual Danfoss OMVW 500	
Drive Head Control	Infinite (0 to 133 rpm) via friction lock joy stick	
Torque Controller	Forward Rotation: screw adjustable with 34.5 bar (500 psi) boost switch Reverse Rotation: screw adjustable	
Drive Head Guide Cradle	Heavy duty low friction nylon wear pads	
Head Plate Alignment	Adjustable nylon wear blocks at either end of each head slide plate (x4)	

Torque and RPM Ratings						
Speed infinitely variable: 0 to maximum rpm						
Torque infinitely adjustable: 0 to maximum						
		Displacement	Oil Flow	Torque		Output Speed
		cm ³ /in ³	US-gpm	Nm	lbft	RPM
Engine Speed 1600 rpm	3.5:1	500/61	54	12073	8903	106
Engine Speed 1800 rpm	3.5:1	500/61	61	12073	8903	118

Dump Mast		
	Metric	U.S.
Stroke	2.5 m	8.2 ft

Boom Winch		
	Metric	U.S.
Drum Capacity	30 m	99 ft
Rope (1960 Caser High Capacity)	10 mm	0.39 in
Hoisting Capacity (full drum)	750 kg	1654 lb
Rope Length	19 m	62 ft
Rope Usable Length	15 m	49 ft
Static Braking	Spring applied / hydraulic release	
Dynamic Braking	Over-center valve	

Survey Winch		
	Metric	U.S.
Drum Capacity	1000m	3281 ft
Rope (Galvanized)	6 mm	0.24 in
Minimum breaking Load	2,000 kg	19.6 kN
Aggregate Breaking Load	2,570 kg	25.2 kN
Hoisting Speed	4 m/sec	13 ft/sec
Static Braking	Over-center valve	
Mounting	Over-center valve	
Hydraulic Motor	SAI GM2	

TECHNICAL INFORMATION

RC Boom		
	Metric	U.S.
Drum Capacity SWL	540 kg	1,190 lb
Boom Slew System	Reduction gearbox with in-built brake	
Slewing Degrees	330° (extra travel suit lifting acoustic pack)	
Extension distance from mast center line	4 m	13 ft
Boom retracted length	750 mm	29.5 in
Functions	Slew, tilt (slew with automatic stops)	

Rod Trough		
	Metric	U.S.
Drill Rod Alignment guide	Trough with adjustable heights	
Mast guide collision protection	Rapid retract when control returned to neutral	

Rod Handler		
	Metric	U.S.
Model	LC™ RC rod handler	

Hose Reeler		
Suspends all drive head traveling hoses, keeping them away from operator and in tension to prevent snaring and hose damage.		

Base Frame Assembly		
	Metric	U.S.
Length	7.95 m	26 ft
Width	2.8 m	9.19 ft
Mast Angle Locking	Hydraulic cylinder locking system (hands free - vertical to 45°)	

Jack Leg Assemblies		
	Metric	U.S.
Style	Encased RHS	
Fixing	Welded to main base frame	
Locking	Over center valves	

Power Pack		
	Metric	U.S.
Engine	MTU 12V 2000 series	
Configuration	90° V12 cylinder	
Electrical System	24 volt	
Displacement	23.9 L	1458 in ³
Power (intermittent) @ 1800 RPM	634 kW	850 HP
Engine Speeds	1,600 - 1,800 RPM	
Peak Torque	3,682 Nm	2715 lb/ft
Control display	DDEC 1V electronic controls with auxiliary interface module	
Estimated fuel burn	148 L/hr	39 gal/hr
Air filtration	Large dual Donaldson FVG16 with safety elements	
Pre-cleaners	Centri turbo cleaners	
Exhaust system	Special low back pressure with low sound pressures - 250 mm (9.8") outlet	

Control Console	
Position	L/H rear corner of rig base
Extension	1000 mm (39.4") travel to facilitate visibility of work table whilst angle drilling
Yaw	Cabinet slews 30° away from mast to facilitate visibility of work table
Engine ECM Display	Mounted in console fascia
Cyclone shutter	Dual Norgren 5/2 valves

Central Grease Station	
Location	L/H side rear main base
Grease points	All stationary grease points (not traveling points)

Hydraulic Tank Assembly		
	Metric	U.S.
Capacity	600 L	145 gal
Baffle/De-aeration	central baffle with lower corner oil flows	
Filtration return	Single stand alone 5000 series pall flange mount - 1500 L (396 gal) capacity	
Low Oil Level	Engine shut down via DDEC - AIM module	

TECHNICAL INFORMATION

Water Pump		
	Metric	U.S.
Water pump	FMC E0413H.D	
Water pump pressure	69 bar	1000 psi
Fluid Delivery	56 Lpm	14.9 US gpm
Maximum Pressure	103 bar	1500 psi
Input	700 rpm maximum	
Cylinders	Four (4)	
Water Flow Control	Screw adjustment at operator console - 0 to maximum	
Water Pump Outlets	Water injection, dust suppression and washing down	

Hammer Oil		
	Metric	U.S.
Type	Hydraulic pump delivery	
Control	Operator's console	
Flow Control	Screw adjustment at operator's console	
Tank Capacity (Aluminum)	40 L	10.6 gal

Hydraulic Oil Cooler		
	Metric	U.S.
Position	Mounted in Vee Pack cooler	
Hydraulic Oil Heat Rejection	45 kW	2560 BTU / min

Power Breakout (STD)		
	Metric	U.S.
Type	Hydraulic cylinder	
Tool	Wrap around spanner	
Size (diameter)	114.3 mm	4.5 in
Operation	Operator console	
Adjustment	Hydraulic vertical	

Auto Power Breakout		
	Metric	U.S.
Functions	Extend-clamp make and break (3 lever control)	
Size to suit RC drill rod	114.3 mm	4.5 in
Control	Lever controls at operator console	
Clamping Torque	Screw adjustable at operator console with pressure gauge - 0 to maximum torque	

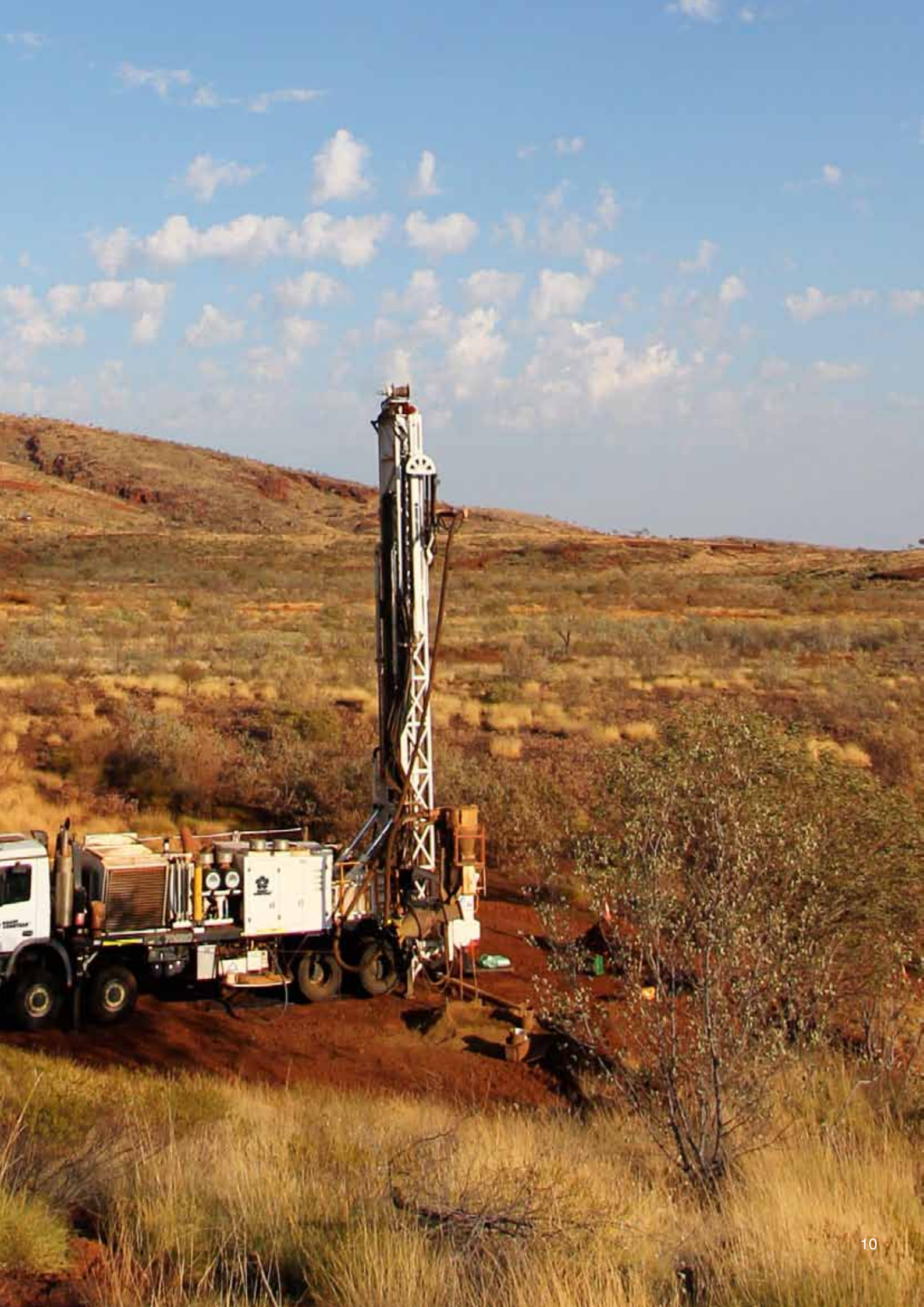
Drill Rod Spanners (2)		
	Metric	U.S.
Rod Size (client to specify)	101.6 or 114.3 mm	4 or 4.5 in
Controls	Foot actuated	
Actuation	Air cylinders	
Spanner Action	Top: foot pedal with spanner auto return Bottom: foot pedal with detent positioning	

Slips Table		
	Metric	U.S.
Opening (maximum)	305 mm	12 in
Slips	Hardened inserts	
Control	Hydraulically adjustable	

Air / Fluid Manifold		
	Metric	U.S.
Size	50 mm	2 in
Pressure	103 bar	1500 psi
Seals	High temperature	
Air inlets	Auxiliary and booster	
Activation	Operator console	
Discharge valve air flow angles	Vertically down (safety)	
Airline dumping valve	Lever operated	

Battery (x2)		
	Metric	U.S.
Isolators	Dual pole at battery	
Access	Easy access in emergency	
Type	Key activated	





TECHNICAL INFORMATION

Compressor		
	Metric	U.S.
Brand	Sullair oil flooded screw	
Flow	38.2 m ³ /min	1350 cfm
Air pressure	34.5 bar	500 psi
Air pressure control	Console switching - 14.5/24.1/34.5 bar (210/350/500 psi)	
Receiver tank	Large Sullair tee tank	
Gear Ratio	2.61:1	
Power Draw	474 kW	636 hp
Filtration	Dual Donaldson FVG 16 with pre-cleaners	
Inlet Valve	Poppet style	

Vee Pack Cooler	
Style	Vee Pack
Fan blade	Multi-wing 630 mm (24.8 in) diameter
Heat displacement @ max power draw	46435 BTU/min
Air discharge	vertical

Finish
All steel sand blasted to white metal
Undercoat and topcoat - polyurethane two pack paint
All components painted prior to assembly

Rod Bin
Standard 3 tilting plates to suit load and unload position with hinged head and toe boards

Fire Suppression	
Description	Auto heat activation plus manual activation at console and RHF jacking leg
	Two (2) hand held fire extinguishers at front and rear of rig platform
	Foam base fire suppression system, operating temperatures -12°C to 100°C

Additional Safety Features	
Emergency stop at operator console and two at front corners of rig base	
Hose socks on all high-pressure air hoses fixed to anchor points	
Access steps mounted into rig base (2 locations)	
Mast traveling air hose has hard sheath cover and full S/S safety sock covering full hose length	

Air Swivels	
Air swivel / blow down system	OX swivel and BLY blow down system
Sample pipe	Fabricated with sacrificial wear points

Manuals	
Operators (x2)	Standard operating and safety procedures
Spare Parts (x2)	Boart Longyear™ manufactured components and hydraulic circuits

Commissioning	
Upon commencement of normal drilling operations, Boart Longyear to coordinate on-site commissioning with client	
Travel and accommodation costs at clients expense	

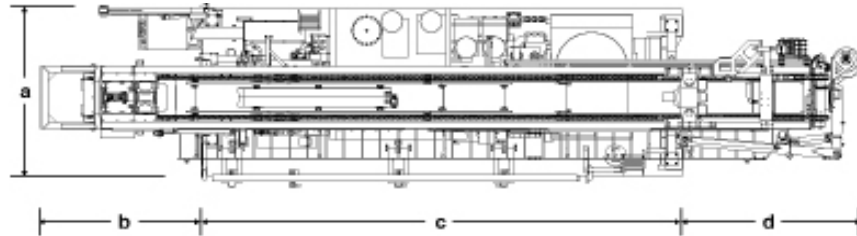
TECHNICAL INFORMATION

Options		
	Metric	U.S.
Acoustic Cover		
Location	Encloses engine and compressor	
Access	Large removable doors for maintenance	
Air flow	Large air inlets with roof mounted sucker fan - hydraulic driven	
Material	Aluminum frame with dense foam filling	
Fuel Tanks		
Capacity	1080 L	285 gal
Type	Dual aluminum round	
Mounting	Below drill rig base one per side	
Fuel level	Guage at operator console and truck instrument panel	
Slips Table		
Opening (maximum)	405 mm	16 in
Slips	Hardened inserts	
Control	Hydraulically adjustable	
Ladder	Mounted on right hand side of mast Fitted with lanyard rope that allows a harness to be attached for ascending mast when vertical Note: May not be available with some rod handler configurations	
Cyclone Pivot Frame		
Position	Mounted to left hand rear jack leg outer	
Valving	Dual hydraulic valves suit cyclone raise and splitter slewing	
Cyclone	Supplied by client and mounted by Boart Longyear	
Frame folding	Hydraulic cylinder	
Weight = 29,000 kg 63,800 lbs (approx.)	Consisting of: Mast with Rod Handler Hydraulic and survey winch c/w control console Boom and survey winch and RC boom Engine power group and pump group Rotation drive head Base frame and Jack leg assembly Compressor and Vee pack cooler Hammer oiler Water pump	

DIMENSIONS AND WEIGHTS*

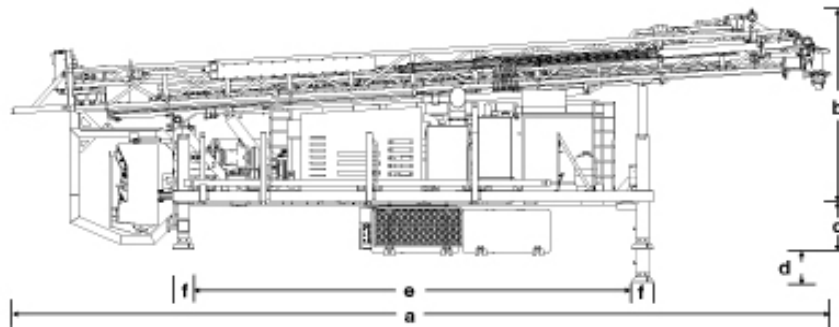
Drill - Top View

a = 2796 mm (110.08 in)
 b = 2665 mm (104.92 in)
 c = 7950 mm (312.99 in)
 d = 2938 mm (115.67 in)



Drill - Side View

a = 13553 mm (533.58 in)
 b = 3288 mm (129.45 in)
 c = 751 mm (29.75 in)
 d = 1250 mm (49.21 in)
 Jack Leg extended
 e = 7245 mm (285.24 in)
 f = 350 mm (13.78 in)



Rig Carrier (by client)

The standard LCTM36 drill is designed to suit a Mercedes Actros 4144 8x8 truck. Selection of an alternate carrier should be done in conjunction with the above diagram to ensure wheels, fuel tanks, transmission, suspension and other 'furniture' will not foul with the rig jack legs. A minimum chassis specification will need to be met prior to the rig being mounted to it. Additionally, care should be taken that weight and dimensional envelopes are in accordance with local statutory vehicle guidelines. In some instances, permits may be required. There is a nominal provision to fit the rig to an Actros that includes allowances for mud guards and clearance lights and tail lights.

NOTE: Mounting the rig to tracks is non-standard, please contact your Boart Longyear representative.

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



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