



Cat[®] MD6540

Rotary Blasthole Drill

Specifications

Rated Capacity

Hole diameter 229-381 mm (9-15 in)

16 meter config

Depth single-pass Up to 16.15 m (53 ft)

Depth multi-pass Up to 84.73 m (278 ft)

20 meter config

Depth single-pass Up to 19.86 m (65 ft 2 in)

Depth multi-pass Up to 65.58 m (215 ft 2 in)

Operating Temperature

Min. ambient rating - standard unit -28° C (-20° F)

Cold weather option -40° C (-40° F)

Max. ambient rating - standard unit 52° C (125° F)

Altitude 4 572 m (over 15,000 ft)

Pull-down/Hoisting Capacity

Pull-down capacity Up to 489 kN (110,000 lbf)

Hoist capacity Up to 383 kN (86,000 lbf)

Drilling feed/retract rate 0-37.5 m/min (0-123 fpm)

Type Closed-loop hydraulic (stationary rod, moving barrel)

Number of cylinders 1

Cylinder bore 222 mm (8.75 in) diameter

Cylinder rod 121 mm (4.75 in) diameter

Cable type 29 mm (1.125 in) DYFORM 8

Cable sheaves (cylinder) 559 mm (22 in) PD

Cable sheaves (top and bottom) 610 mm (24 in) PD

Sheave guards Standard at bottom plate

Adjustable head guide shoes Steel with replaceable Nylatron™

Rotary Drive System

Rotation speed 0-150 rpm HSLT (std)
0-124 rpm LSHT option

Torque 0-17 219 Nm (12,700 ft-lb) standard HSLT

0-20 880 Nm (15,400 ft-lb) LSHT option

Rotation power 271 kW (363 hp)

Gearbox Casting design

Main thrust bearing Taper roller

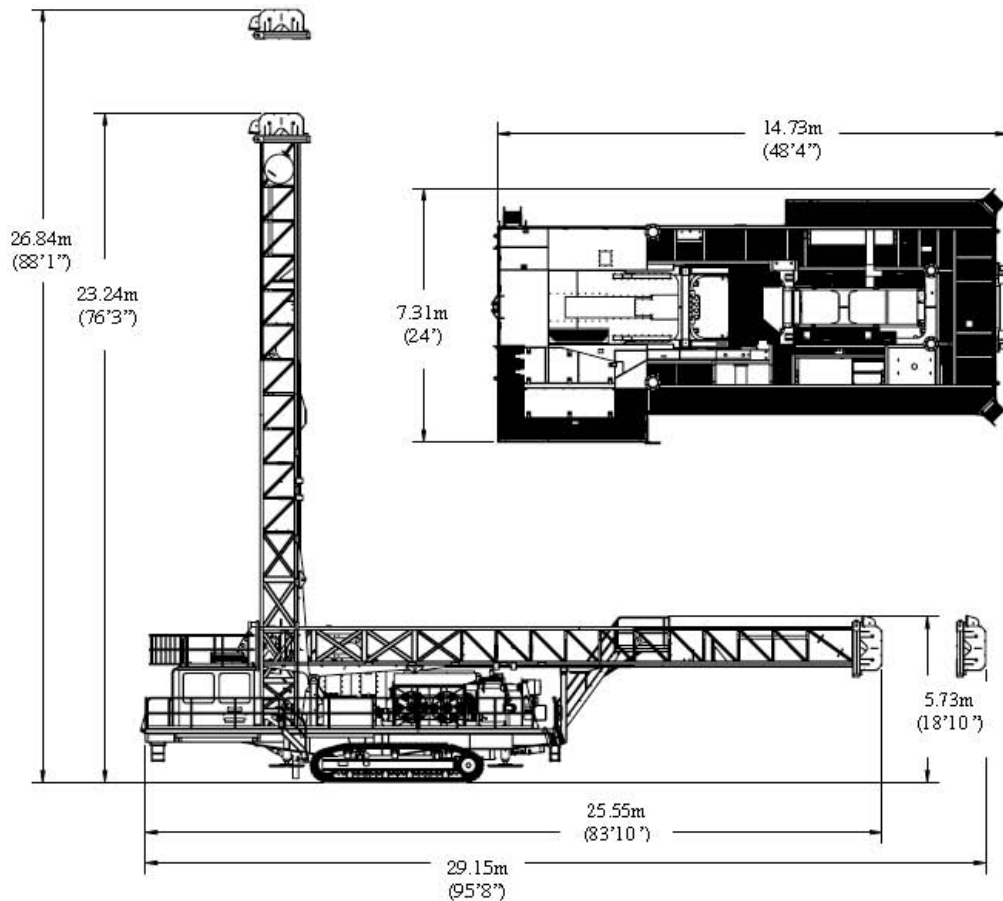
Lubrication Oil flooded

Gearing Straight spur

Ratio 16:1

Drive motor See hydraulic system

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Cooler Assemblies

Engine Radiator/Cooler

Type	Jacket water and secondary loop, stacked
Size	2540 mm (100 in) wide x 2057 mm (81 in) tall
Top tank	Sealed deaeration tank, pressure cap, overflow tube and sight glass

Oil Cooler

Type	Separate cores, stacked
Compressor section size	2540 mm (100 in) wide x 1778 mm (70 in) tall
Hydraulic section size	1778 mm (70 in)

Fan (common to each unit) 2 per cooler - 1 067 mm diameter (42 in); 6 blades, 1 per motor

Fan speed	2-speed fans - high speed 1,600 rpm
Fan guard	Welded
Max. ambient rating	52° C (125° F)

Compressor

Compressor (Standard)

Type	Oil-flooded, single-stage screw
Discharge air flow (sea level)	102 m ³ /min (3,600 cfm)
Max. operating pressure	6.9 bar (100 psi)
Discharge flow max. setting (sea level)	102 m ³ /min (3,600 cfm)
Discharge flow min. setting (sea level)	Adjustable down to 51 m ³ /min (1,800 cfm)
Air cleaner	
Type	Dry-type with safety element
Model	SSG 20 (two each)
Oil cooling	Air-to-oil cooler, thermostatically controlled
Oil separation	Vertical barrier element, pre-separation in 189 l (50 gal) sump, vertical tank
Oil filtration	12 micron replaceable element
Drive	Direct coupled to engine flywheel
Controls	Automatic with safety shut-down
Air shut-off	Hydraulic cylinder-operated from operator's seat

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Engine (Standard)

Manufacturer	Detroit Diesel
Model	Series 2000 16V
Rated horsepower	899 kW (1,205 hp)
Full load RPM	1800
Starting system	24 VDC, dual starters
Safety shut-down system	Energized to run
Air cleaner	
Type	Dry-type with safety element
Model	55G 20
Batteries	Four (4) each 8-D
Muffler	Two 127 mm (5 in) inlet and 152 mm (6 in) outlet
Fuel tank	2055 l (543 gal) + 1234 L (326 gal); total 3289 L (869 gal)
Turbo and manifold covers	Blankets, custom-fitted

Mast

Construction	ASTM 500 grade B rectangular tubing
Main chord size	
Front	203 mm x 102 mm (8 in x 4 in)
Rear	127 mm x 127 mm (5 in x 5 in)
Pivot and raising area	Rectangular tubing A frame, reinforced in high-stress areas, with 127 mm (5 in) high-strength plate
Hydraulic lines	Pressure-rated steel hydraulic tubing
Hose tray	Bolt-on fabrications, steel lower, aluminum upper
Pipe rack	
194 mm (7.625 in) through 235 mm (9.25 in) OD (5 each)	
254 mm (10 in) and 273 mm (10.75) OD (4 each)	
Feed cable tensioner	Automatic

Mast Elevating Cylinders

Number of cylinders	2
Cylinder bore diameters	216 mm (8.50 in); 184 mm (7.25 in); 152 mm (6 in)
Cylinder rod	203 mm (8 in); 171 mm (6.75 in); 114 mm (4.5 in)
Cylinder stroke	4 110 mm (161.8 in)
Lift capacity each cylinder	671 kN (150,800 lbf)

Operator's Cab

Location	Adjacent to the drill deck
Type	One piece, three man; shock-mounted; integrated FOPS certified, fully electrical/electronic
Length at floor	2581 mm (102 in)
Width at floor	1822 mm (71.75 in)
Floor area	4.4 m ² (47.3 ft ²)
Height inside	2121 mm (83.5 in)
Construction	12-gauge steel welded to 51 mm (2 in) steel tube
Windows	Tinted thermopane glass in rubber mounting
Number of windows	12
Number of doors	Two with 2 (ea) windows (included in above)
Left door to drill deck	Swing-type HD hinge
Right door	Swing-type HD hinge
Operator's seat	One swivel-type with armrests, headrest and retractable seat belt
Helper's seat	Full-cushion type, collapsible, stow-away and removable
Insulation, floor	3 mm (.125 in) pyramid vinyl surface
Door latches	Large heavy-duty latches with lockable handles
Sound levels	72 db(A)
Climate control	Roof-mounted, AC/heating/pressurizing unit
Roof	Roof viewing hatch with window (protected with FOPS-certified cage)

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Operator's Controls/Gauges

Location

Split console at front and side cab wall, placed so controls in operator's reach while arms resting on seat armrests

Standard Engine Controls/Indicators

Water temperature

High water temperature shut-down

Oil pressure (electric)

Low-pressure shut-down

Electric voltmeter

Auto shut-down bypass

Start button

Stop button

Fuel primer

Tachometer

Throttle control

On/off light switch

Hourmeter

Drill hour

Fuel level

Diagnostic connection

Diagnostic fault and indicator lights

Standard Compressor Controls

Compressor discharge temperature

Air pressure gauge

Compressor start/run control

High compressor discharge temp., engine shut-down

Low compressor oil pressure, engine shut-down

Full/minimum displacement switch

Standard Drilling Controls: All Electric/Electronic

Leveling jacks controls	Dust/water injection
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HOBO wrench control	Dust curtain
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Mast elevation control	Deck wrench control
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Pull-down control	Level indicator
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Pull-down pressure control	Winch control
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Rotation control	Rod catcher control
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Propel controls	Viewing hatch door control
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Pipe rack in/out control	Compressor controls
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Mast lock

Drill Monitor System

Split console controls are configured with touch-screen interface to display drill health and performance

One-touch auto-leveling; one-touch single-pass drilling functions included

Drill performance and monitoring includes a downloadable memory function

The Auto-drill System is fully configurable with any GPS/tracking or fleet management/optimization system with one point of plug-in

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Undercarriage

Type	Excavator type
Pad width	900 mm (35.4 in)
Pad type	Triple grouser
Rollers	Sealed, oil-flooded
Number of rollers on each side	11
Upper track chain support	Three (3) carrier rollers
Rock guards	Standard full-length guards
Overall length	6706 mm (264 in) (variable with adjustment)
Final drive	Independent hydrostatic motors
Drive horsepower per track	268 kW (360 hp) maximum
Brakes	Spring set, hydraulic release
Brake release	Automatic
Tram speed max	2.09 km/h (1.3 mph)
Gradeability mast down	66%
Rear axle	356 mm (14 in)
Front	Three-point oscillating type
Track adjustment means	Hydraulic with grease gun
Track drive disconnect	Standard (manual)

Mainframe, Decks & Walkways

Main rails	Box section construction comprised of top, bottom and vertical plates, and internal stiffeners – made of ASTM Grade 50
Construction	Electric-welded plate box design, sculpted to reduce stress
Jacks, mast pivot and deck	Welded integrally to mainframe
Tools and battery box	In-board extra-large toolbox (sunk in drilling deck)

Mainframe, Decks & Walkways (continued)

Machine deck	Access all sides
Hand rails	48 mm (1.9 in) diameter x 3759 mm (48 in) high – steel tube
Tow eyes	Welded, two front

Leveling Jacks

Number	4
Location	2 front, 2 rear
Cylinder bore diameter	203 mm (8 in) drilling end; 178 mm (7 in) non-drilling end
Cylinder rod diameter	127 mm (5 in) drilling end; 102 mm (4 in) non-drilling end
Cylinder stroke	1219 mm (48 in) drilling end; 1524 mm (60 in) non-drilling end
Lift capacity	671 kN (150,796 lbf) each drilling end; 513 kN (115,423 lbf) each non-drilling end
Pad connection	Ball and socket
Pad diameter	1067 mm (42 in)
Safety check valves	CBVs internal at each cylinder

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Drill Table and Work Deck

Table height off ground	1854 mm (73 in) drill on tracks
Deck floor material	Ry-grip non-slip floor plate
Drill deck length	5664 mm (223 in) work deck
Drill deck width	6147 mm (242 in)
Hand rails	48 mm diameter x 1 219 mm high (1.9 in x 48 in) steel tube
Wide walkways	
Viewing hatch operated from the cab	In the drill deck; hydraulically
Dust curtain	
Material	6 mm (.25 in) rubber nylon reinforced
Length	5893 mm (232 in)
Width	2896 mm (114 in)
Dust Reflector	Directly below table bushing
Material	Natural rubber seal, 23 mm (.9 in) thick; 559 mm (22 in) diameter with hinged retainer

Hydraulic System

Left Track/Rotation Pump (Closed-Loop)

Type	Axial piston, variable volume
Max. flow	473 L/min (125 gal/min)
Pressure Rating	400 bar (5,800 psi)

Right Track/Feed Pump (Closed-Loop)

Type	Axial piston, variable volume
Max. flow	473 L/min (125 gal/min)
Pressure Rating	400 bar (5,800 psi)

Accessory Circuit Pump (Open-Loop)

Type	Axial piston, variable volume
Max. flow	189 L/min (50 gal/min)
Pressure Rating	400 bar (5,800 psi)

Fan Circuit Pumps for Split Coolers (2)

Type	Double gear
Max. flow	264 L/min (65 gal/min) dual fan
Pressure Rating	241 bar (3,500 psi)

Track Drive Motors (2)

Type	Axial, piston
Operating Pressure	414 bar (6,000 psi)

Rotation Drive Motors (2)

Type	Axial, piston
Pressure Rating	345 bar (5,000 psi)

Fan Drive Motors for Split Coolers (2)

Type	Piston
Pressure Rating	414 bar (6,000 psi)

Pump Drive Gearbox

Type	4 pad
Drive	Rubber coupler/drive shaft to front of engine

Filtration (All filters have indicators and bypass)

Loop	12 micron 2 per loop
Charge	3 micron 1 per loop
Main return (2 each)	12 micron
Case return	12 micron

Oil Cooling System (Hydraulic Tank)

Reservoir	1363 L (360 gal) with sight and temperature gauge
Reservoir breather	Atmospheric, filtered breather 10 micron

Lubrication System

Automatic lubrication system

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Accessories, Tools & Handling Equipment

Drill Pipe (optional)

Diameter	Customer specifications, 194 mm x 273 mm (7.625 in-10.75 in)
Wall thickness	25 mm (1 in)
Length	13.7 m (45 ft) only for 16 m mast; 9.1 m (30 ft) only for 20 m mast (2 each on starter string)
Threads	Depends on pipe size

Adapter Sub

Diameter	Depends on pipe diameter
Wall thickness	25 mm (1 in)
Length	927 mm (36.5 in)
Top thread	140 mm (5.5 in) API reg.
Bottom thread	Depends on pipe diameter

Bit Sub

Diameter	Depends on pipe diameter
Wall thickness	25 mm (1 in)
Top thread	Depends on pipe diameter
Bottom thread	Depends on pipe diameter

Table Bushing

Roller deck bushing

Deck Wrench

Location	Drill deck
Wrench plate	76 mm (3 in) T1-steel
Wrench positioning	Hydraulic cylinder
Impact means	Stationary jaw, flats at 15 deg. off axis

HOBO Wrench

Location	Lower left, outside mast
Support	Mast-mounted
Wrench type	Patented HOBO (Hydraulic Operated Break Out)
Power	Hydraulic cylinders (3)
Pipe rack (inside the mast)	Typical configuration: 5-pod pipe carousel for up to 235 mm (9.25 in) OD
Typical configuration:	4-pod pipe carousel for 273 mm (10.75 in) OD

Winch

Location	Front of mast in mast pivot area
Rating	3629 kg (8,000 lb) rated winch; 5 443 kg (12,000 lb) optional
Cable size	16 mm (.625 in)
Safety hook	Swivel-type positive lock
Brakes	Automatic
Auto shut-off	Located in crown, automatically shuts off winch when ball weight is seated

Options

Dust Collection

Designed for high-capacity air systems, the Dry Dust Suppression System uses a fan-wheel arrangement with aggressively pitched fins/vanes that provide 173 m³/min (6,100 cfm) air flow and can develop up to 508 mm (20 in) water vacuum at the deck inlet.

Water Injection

Hydraulic pump and motor arrangement with below-deck tanks 2 922 l (772 gal) capacity.

Cold Weather Package

Temperatures to -40° C/F

Heating & Circulation

Drainage for water-injection system temperatures to -40° C/F.

Note: Final dimensions, GVW and corresponding load-out vary based on options selected and final configuration.

Performance ratings are based on 100% efficiency, and on engineering specifications and calculations in accordance with accepted industry standards. These capacities will vary with drilling conditions. All specifications are subject to change without notice.



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