



# Cat<sup>®</sup> MD6540

## Electric 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 Blasthole Drill—MD6540 Electric

## 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

## Cooler Assemblies

### Oil Cooler

Type	Separate cores, stacked
Compressor section size	2 540 mm (100 in) wide x 1 778 mm (70 in) tall
Hydraulic section size	1 778 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 60 Hz (sea level)	102 m <sup>3</sup> /min (3,600 cfm)
Discharge air flow 50 Hz (sea level)	89 m <sup>3</sup> /min (3,150 cfm)
Max. operating pressure	6.9 bar (100 psi)
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

## Electric Motor

Manufacturer	TECO Westinghouse
Type	AC, Induction, 4-pole, 3-phase, continuous duty
Rated horsepower	895 kW (1,200 hp) @ 6,600 VAC (4160-7200 optional)
Full load	1,490 rpm (50 Hz), 1800 rpm (60 Hz)
Starting System	Full voltage, non-reversing starter. Soft start.
Mounting	Skid / sub-frame, rubber-mounted to main frame

# Rotary Blasthole Drill—MD6540 Electric

**Cable Reel** Self-powered, self-contained, own hydraulic system, integrated controls, automatic spool-on spool-off control.

Diameter	1219 mm (4 ft)
Spool length	2438 mm (8 ft)
Capacity	Up to 335 m (1,100 ft) of 60 mm (2.375 in) diameter cable

## 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	2 581 mm (102 in)
Width at floor	1 822 mm (71.75 in)
Floor area	4.4 m <sup>2</sup> (47.3 ft <sup>2</sup> )
Height inside	2 121 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, wall and ceiling	51 mm (2 in) thermal with sound barrier
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)

# Rotary Blasthole Drill—MD6540 Electric

---

## 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 (seperate console monitor)

---

Electric voltmeter

---

Start button

---

Stop button

---

Digital display

---

Electric-motor hourmeter

---

Drill hourmeter

---

Current read-out

---

Motor fault codes

---

Operating Parameters programming

---

### Standard Compressor Controls

---

Discharge temperature

---

Air pressure gauge

---

Start/run control

---

High compressor discharge temp., engine shut-down

---

Low compressor oil pressure, engine shut-down

---

Full/minimum displacement switch

---

Compressor hourmeter

---

---

## Operator's Controls/Gauges (continued)

---

### Standard Drilling Controls: All Electric/Electronic

---

Leveling jack controls

---

Dust/water injection

---

HOBO wrench control

---

Dust curtain

---

Mast elevation control

---

Deck wrench control

---

Pull-down control

---

Level indicator

---

Pull-down pressure control

---

Winch control

---

Rotation control

---

Rod catcher control

---

Propel controls

---

Viewing hatch door control

---

Pipe rack in/out control

---

Auto level raise/lower switch

---

Pipe rack indexing control

---

Auto level indication light

---

Pipe rack lock

---

Filter restriction lights

---

Mast lock

---

Compressor controls

---

### 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

---

# Rotary Blasthole Drill—MD6540 Electric

## 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	13
Upper track chain support	Three (3) carrier rollers
Rock guards	Standard full-length guards
Overall length	7 315 mm (288 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)
Machine deck	Access all sides
Hand rails	48 mm (1.9 in) diameter x 3 759 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	1 219 mm (48 in) drilling end; 1 524 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	1 067 mm (42 in)
Safety check valves	CBVs internal at each cylinder

## Drill Table and Work Deck

Table height off ground	1 854 mm (73 in) drill on tracks
Deck floor material	Ry-grip non-slip floor plate
Drill deck length	5 664 mm (223 in) work deck
Drill deck width	6 147 mm (242 in)
Hand rails	48 mm diameter x 1219 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	5 893 mm (232 in)
Width	2 896 mm (114 in)
Dust deflector	Directly below table bushing
Material	Natural rubber seal, 23 mm (.9 in) thick; 559 mm (22 in) diameter with hinged retainer

# Rotary Blasthole Drill—MD6540 Electric

## 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
Pressure Rating	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	1 363 l (360 gal) with sight and temperature gauge
Reservoir breather	Atmospheric, filtered breather 10 micron

### Lubrication System

Automatic lubrication system

## 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

### HOBOWrench

Location	Lower left, outside mast
Support	Mast-mounted
Wrench type	Patented HOBOWrench (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

# Rotary Blasthole Drill—MD6540 Electric

## Accessories, Tools & Handling Equipment (continued)

### Winch

Location	Front of mast in mast pivot area
Rating	3 629 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 m<sup>3</sup>/min (6,100 cfm) airflow 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.



# Rotary Blasthole Drill—MD6540 Electric

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at [mining.cat.com](http://mining.cat.com) and [www.cat.com](http://www.cat.com)

© 2011 Caterpillar Inc.  
All rights reserved

CAT, CATERPILLAR, their respective logos, "Caterpillar Yellow" and the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

AEHQ6615

