MD6640

Rotary Blasthole Drill

Technical Specifications

Configurations and features may vary by region. Please consult your Cat® dealer for availability in your area.

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MD6640 Rotary Blasthole Drill Specifications

Power Source

Siemens AC Induction Motor	597 kW	800 hp

- Totally enclosed, fan-cooled, Service Factor 1.15, Class F Insulation
- Squirrel Cage, 2-pole, horizontal, foot-mounted AC motor (Dual Shaft)
- Operates on a power supply determined per country and mine requirements
- Short circuit protection, reverse phase relay protection, thermal overload protection, vacuum starter, disconnect switch

Compressor/Receiver Options

Compressor (single stage)		
Volume and Max Working Pressure	108 m^3/min @ 4.5 bar	3,800 ft^3/min @ 65 psi
Connection to Induction Motor	Rubber coupling	

- Variable volume controls enable operators to adjust air output to reduce energy consumption and optimize bit performance.

Receiver Tank Options

- Low Pressure 4.5 bar (65 psi)

Cooling

The MD6640 is functional in ambient temperatures ranging from –40° C to 50° C (–40° F to 122° F), based on the selected Climate Package.

Cooler assembly for compressor system:
- Belt-driven fan
- 29.8 kW (40 hp) electric motor
- 18.6 kW (25 hp) additional motor/pump

Cooler assembly for hydraulic system:
- Direct drive fan
- 2.2 kW (3 hp) electric motor

Climate Options

Climate Level 1 (standard fluids and lubricants)
- Rated down to –1° C (30° F) temperatures
- Withstands high heat to 50° C (122° F)

Climate Level 2 (cold weather fluids and lubricants)
- Rated for temperatures 0° C to –20° C (32° F to –4° F)
- Water injection heater and two (2) machinery house heaters

Climate Level 4 (Arctic fluids and lubricants, heating package)
- Rated for temperatures –20° C to –40° C (–4° F to –40° F)
- Compressor cooler assembly with temperature-activated louver package, insulated cooler compartment with heater 15 kW (20 hp).
- Insulated machinery house walls and roof. Vents with rubber flaps prevent wind from entering the enclosure.
- Insulated water injection tank with 4.5 kW (6 hp) heaters and heat tape for water injection piping
- Two (2) machinery house heaters (15 kW [20 hp] each)

Frame and Work Deck

- High strength steel construction, continuous top and bottom plate, closed torsion box design
- A-frame lugs with hardened steel bushings that are integrated with the main vertical plates
- Front jack towers are integrated into the main frame, at the connection point for mast braces
- Stationary rear drill deck; for vertical and angle drilling
- Hydraulically actuated sliding view hatch for positioning over target
- Four-jack Automatic Leveling System for safe, fast cycle times
- Automatic centralized lubrication banks for all pivot points
- Heavy duty tow eyes (front end) to connect tow bar
- One egress point on rear drill deck area in addition to main access boarding stairs
- Cab perimeter walkway
- Sturdy guardrails, toe guards, self-closing gates

Undercarriage

Model	Cat® 395 Excavator type	
Lower rollers	13	
Carrier rollers	5	
Track chain guards and guides	Full length, heavy duty	
Draw bar pull	79 894 kg	173,932 lbs
Travel speed	0.48-1.77 km/h	0.3-1.1 mph
Double grouser track shoes		
Standard shoes	750 mm	29.53 in
Optional shoes (wide)	900 mm	35.43 in

- Hydrostatic propel and independent planetary drives enable maneuverability in tight locations
- Positive Pin Retention (PPR2) and Grease Lubricated Track (GLT) pins
- Double grouser track shoes provide more traction
- Automatic hydraulic track chain tensioning system
- Spring-applied, hydraulically released wet disc braking system
- Dual axles (fixed rear, oscillating front yoke) provide flexibility to propel over rough terrain

Hydraulics

- Two (2) variable displacement piston pumps drive independent crawler track drives
- Three (3) gear pumps drive cylinders as part of an open circuit system
- Automatic, centralized 45-point lubrication system
- Return line filters mounted in the hydraulic reservoir ensure fluid integrity
- S·O·S℠ ports

Mast and Pipe Carousel Features

21.3 m (70 ft) Mast		
Hole diameter range	270 – 406 mm	10.625 – 16 in
Single-pass depth	21.3 m	70 ft
Multi-pass depth	Up to 42.7 m	Up to 140 ft
Hoist capacity	Up to 49 895 kg	Up to 97,605 lb
Hoist speed	Up to 22.86 m/min	Up to 75 ft/min
Bit load (single-pass)	Up to 63 975 kg	Up to 141,000 lb
Feed speed	Up to 7.62 m/min	Up to 25 ft/min

- Left-hand (LH) and Right-hand (RH) pipes racks are hydraulically actuated. Racks accept various pipe diameters.
- Configuration choices include single- or multi-pass and vertical drilling. Contact your local Cat dealer for optional angle drilling packages (supports mast angle out to 25 degrees, in 5-degree increments*).
- 21.3 m (70 ft) mast configuration complete with pipe rack (left hand side)
- Square, tubular lattice design with horizontal and angle lacing to reduce stress as connection points
- Enlarged torsion box reinforcements at defined intervals for increased mast rigidity
- Main chords have a double tubular design for increased resistance to buckling loads
- Rack and pinion pulldown/hoist system driven by a single excavator-grade DC drive motor
- Maximum single pass bit loading up to 63 503 kg (141,000 lbs)
- Pulldown power transmitted through a triple-reduction gearbox with electrically actuated, spring set disc brake mounted to input shaft to prevent head fall in the event of power failure
- Variable grip hydraulic break out wrench (HOBO) for range of pipe diameters
- LH and RH Deck Tongs standard, optional sliding deck wrench assembly
- Configured with roller deck bushing for tricone applications

**With optional angle hole equipment*

Mast Packages

21.3 m (70 ft) Mast		
Mast accessories	Two pipe catchers, left-hand and right-hand deck tongs, left-hand pipe rack and overhead winch assembly	
Bit basket (Bit wrench)	Manual	
Angle drilling	Optional angle drilling package available. Contact your local Cat dealer.	
Left-hand pipe rack holds a full column of pipe	9.1 or 12.2 m	30 or 40 ft
Optional RH pipe rack (for dual racks) holds a full column of pipe (30 or 40 foot)	9.1 or 12.2 m	30 or 40 ft

Hydraulic Break Out Wrench

Variable Grip Hydraulic	235-273 mm	9.25-10.75 in

Drill Pipe

Customer preference – the MD6640's 21.3 m (70 ft) single-pass mast will accommodate the following pipe lengths:

	9.9 m	32.5 ft
	10.67 m	35 ft
	12.19 m	40 ft
	13.7 m	45 ft
Single Rack (left-hand side)		
Outside Diameter pipe – 235 or 273 mm (9.25 or 10.75 in)	Wall thickness: 25 mm (1 in)	Standard S-S length: 10.67 m (35 ft)
Dual Rack (left- and right-hand sides)		
Outside Diameter pipe – 235 or 273 mm (9.25 or 10.75 in)	Wall thickness: 25 mm (1 in)	Standard S-S length: 10.67 m (35 ft)

Tool Package Rotary (standard)

- Roller deck bushing
- Bit wrench
- LH/RH deck tongs
- Top cross-over adaptor
- Pipe wiper seal

Tool Package Rotary (optional)

- Cushioned deck bushing centralizer
- Deck wrench, sliding, mounted on rotating break-out base
- Heavy Duty Shock sub and top sub adapter

Rotary Head Top Drive System

- 145 kW (195 hp) excavator-grade DC motor drives a heavy duty, double reduction gearbox
- Speed control system maintains the ideal rotary bit speed
- 475V DC motor provides up to 125 rpm max bit speed and 17,489 N·m of torque (12,900 ft-lb) at 100%
- High performance rotary swivel seal with automatic lubrication

MD6640 Rotary Blasthole Drill Specifications

Operator Environment

- Spacious Falling Object Protective Structure (FOPS) cab provides 4.2 m^2 (45.2 ft^2) floor space with an integrated operator station
- Cab perimeter walkway
- Cab rubber shock-mounts to absorb mechanical vibration and minimize outside noise
- Two swing-out, hinged doors with windows and Cat keyed locks
- Operator station includes:
  - Ergonomic, locking swivel seat with armchair joystick controls
  - Two-point seatbelt, lumbar support, tilt (5° adjustment), fore/aft seat adjustment 80 mm (3.1 in)
  - Single 381 mm (15 in) color, high-definition touchscreen to monitor drill performance and activate functions
  - 12-volt power ports
- Additional 254 mm (10 in) color, high-definition display screen for cc cameras
- Radio-ready for communication and entertainment radio
- Literature holder
- Foldaway trainer's seat with retractable seat belt (option)
- Removable floor mat
- Standard Cab
  - Fabric seat
  - Single pane window glass
  - Removable drill window guard
  - Windshield wiper for driller window
- Premium Cab
  - Leather-trimmed seat with heat and ventilation
  - Dual pane window glass
  - Removable drill window guard
  - Fixed front window guard (facing machinery house)
  - Windshield wiper for driller window, as well as front and rear windows
  - Additional in-cab storage box
- Lighting
  - LED interior lights in cab; separate reading light, and backlit joysticks and keypads
  - LED interior lights (machinery house)
  - Zone controls for area lights and spot lighting for night drilling
  - Flood lights for the drill perimeter
  - Spotlights for cable reel area; drill deck; mast carousel; access ladder and walkways
  - Optional cab- and mast-mounted amber strobe lights
  - Emergency back-up lighting in case of power failure
- HVAC
  - Floor vents in the footrest area
  - Roof-mounted air conditioner/heating/pressurizing unit
  - Filter access from deck (does not require roof access); has approximately 500-hour service interval
  - Defogging HVAC vents on driller window
- Cameras
  - Mounted on the non-cab side, under the cab and above cable reel to provide 360° view from operator's seat
  - Additional camera on the mast to view pipe rack and rotary drive operation

Operating System Controls (Standard)

- Rotary torque control
- Virtual rotary head travel stops and interlocks
- Mast machinery brake engaged/disengaged indicator
- Mast machinery (feed and hoist) speed control
- Water injection control
- Mast and mast strut lock indicators
- Tram interlocks to increase operator safety and prevent accidental machine misuse, including for:
  - Machine stability limit
  - Pipe in hole
  - Mast up and locked or down and parked
  - Jacks retracted
- Cab environment controls (AC, filter, heat, fan speeds)
- Level indicator and jack pressure sensors
- Pre-wired for MineStar™ Terrain and autonomous operation
- Data logging of machine health with warnings and fault code records; export capability
- In-cab digital display to monitor:
  - Rotary head rpm
  - Real-time drill depth
  - Drill performance and drill health
  - Machine diagnostics and testing

Automation and Technology

- Drill depth indicator and interlocks
- Drill Assist automated functionality, including:
  - Auto Level (and auto jacks retract)
  - Programmable Drill Controls for automated drilling (single pass)
- Product Link™ Elite (hardware from factory; subscription package sold separately via dealer)
- Autonomous ready
- MineStar Terrain for Drilling ready (Terrain license required; sold separately)

Dust Suppression Options

- Water injection dust control system
  - Water tank capacity: 3785 L (1,000 gal)
- Optional dry dust collector system (contact factory for more information)
  - 255 m^3/min (9,000 cfm) dry dust collector
  - Self-cleaning filters with auto-eject dust chute
- Static dust curtains, four sides boxed-in
- Front and rear hydraulic retractable dust curtains

Service Packages

- Option: fast fill for compressor and hydraulic oil, automatic lubrication system

Service Tool Options

- Lifting bails
  - 168 mm (6.625 in) American Petroleum Institute (API) reg thread for top sub/shock sub and 270-349 mm (10.625-13.75 in) tricone bits
  - 152 mm (6.0 in) Bucyrus Erie Company (BECO) thread for 235 mm (9.25 in) pipe
  - 203 mm (8.0 in) BECO thread for 273 mm (10.75 in) pipe

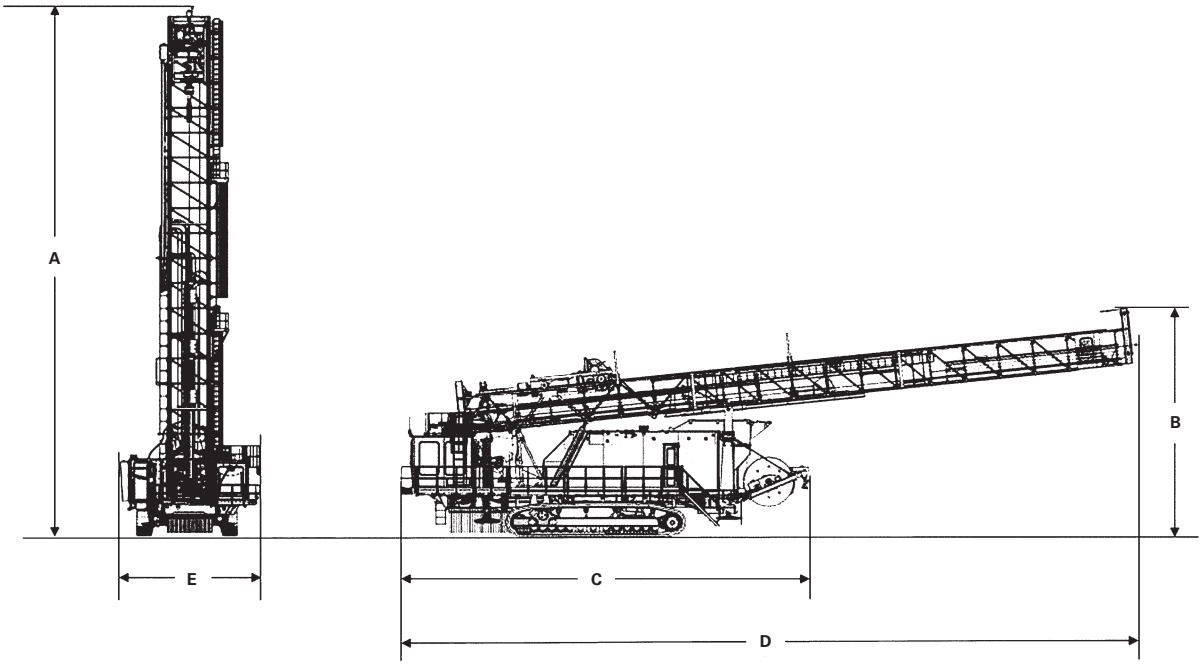
Safety and Security

- Seven (7) machine shut down buttons:
  - Four (4) on ground level
  - One (1) in cab
  - One (1) on drill deck
  - One (1) in machinery house
- Electric horn activated by push button in the cab, and ground level at powered stair access
- Tram alarm is automatic and audible
- Protective window guards for full drill window, front window
- Isolated main High voltage disconnect
- Lockable circuit breakers
- Mechanical interlocks for electrical drive cabinets
- Trip overloads for axillary motor
- High voltage cabinets secured with Kirk-Key Arrangement
- Lightening arrestor assembly
- Automatic head brake upon power loss
- Multiple warning alarms for unsafe conditions
- Programable drill control to minimize vibration
- Vertical tower access ladder with safety hoops
- Drill deck egress point in addition to main powered-stairs access
- Self-closing gates secure egress ladder locations and cab-roof access
- Four (4) closed circuit cameras and screen in cab to provide 360-degree view
- Air hose retention devices

MD6640 Rotary Blasthole Drill Specifications

Dimensions

Optimal Working Ranges (all dimensions are approximate)



A.	Height with Vertical Mast	31.85 m	104.42 ft
B.	Height with Horizontal Mast	9.88 m	32.42 ft
C.	Length of Chassis with Cable Reel	16.97 m	55.67 ft
D.	Length with Horizontal Mast	33.05 m	108.42 ft
E.	Working Width	7.82 m	25.67 ft

Weights*

Working Weight	172 365 kg	380,000 lb

*Type and number of options will affect machine weight

Standard and Optional Equipment

Standard and optional equipment may vary. Consult your Cat dealer for details.

	Standard	Optional
UNDERCARRIAGE		
900 mm (35") wide double grouser		✓
750 mm (30") wide double grouser		✓
MAST GROUP		
21.3 m (70 ft) Single Pass Hole Depth	✓	
Single Pipe Rack – Left Side (select length: 9.14 m [30 ft] or 12.19 m [40 ft])	✓	
Winch: 5443 kg (12,000 lb) capacity	✓	
Pipe catcher, manual (two each)	✓	
Roller deck bushing	✓	
Bit basket (bit wrench), select diameter: 270, 311 or 349 mm (10.625, 12.25 or 13.75 in)	✓	
Dual Pipe Rack – Additional Right Side; 9.14 m (30 ft)		✓
Maximum Pulldown 49 900 kg (110,011 lb)	✓	
Maximum Bit Loading 64 000 kg (141,096 lb)	✓	
LANGUAGE – DECALS AND NAMEPLATES		
English, Spanish or French	✓	
Additional Languages (contact factory)		✓
COMPRESSOR/ELECTRIC MOTOR GROUP		
Single stage compressor – 108 m^3, 4.5 bar (3800 cfm, 65 psi)	✓	
Siemens induction motor – 800 hp (597 kW)	✓	
TECHNOLOGY PRODUCTS		
Product Link™ Elite series PLE742 (Cellular)	✓	
Product Link™ Elite series PLE782 (Dual – Cellular + Satellite)		✓

	Standard	Optional
CAB OPTIONS		
Extended cab; size 4.2 m^2 (45.2 ft^2)		✓
Fabric seat with heavy-duty suspension and two-point retractable seatbelt	✓	
Fabric seat with leather trim, heat and ventilation, heavy-duty suspension and two-point retractable seatbelt		✓
Foldaway trainer's seat with retractable seatbelt		✓
Window shades		✓
Dual-pane glass		✓
Cab roof access system (includes ladders, cage and rails)	✓	
Viewing hatch for hole spotting with spotlight (hydraulically operated)		✓
Lighting package: flood light on perimeter (4200 lumens), area spotlights (1950 lumens each). Mast clearance lights, cab- and front-mounted amber strobe tram beacon	✓	
FRAME		
Viewing hatch for hole spotting with spotlight (hydraulically operated)	✓	
Cable Reel with 457 m (1,500 ft) Capacity (cable not included)	✓	
Jib Hoist mounted on drill deck (to lift bits, subs, deck bushings)		✓
Remote Winch Control (tethered control, outside of cab)		✓

(continued on next page)

Standard and Optional Equipment *(continued)*

Standard and optional equipment may vary. Consult your Cat dealer for details.

	Standard	Optional
DUST CONTROL		
Water injection with 3785 L (1,000 gal) tank, includes drainage hardware, water level sensor and self-contained/submersible electric water pump		✓
Hydraulic Retractable Dust Curtains (Not available w/ Static Dust Curtains or Rear Tow Hooks)		✓
Static Dust Curtains (Not available with Hydraulic Retractable Dust Curtains)		✓
DRILL MONITORING AND CONTROL		
Auto-Drilling, Programmable Drill Control (PDC)		✓
Interface for Third Party Mining Systems (Basic, Reporting Only)		✓
Integrated Interface for MineStar Terrain for Drilling/Command for Drilling		✓
DRILLING		
Heavy Duty Rotary Shock Sub		✓
Cushioned Deck Centralizer – reduces vibration of drill pipe in the hole		✓
Variable Grip Hydraulic Breakout Wrench		✓
Sliding Deck Wrench on Rotating "Break Out" Base (Not available with Centralizer)		✓
FLUIDS		
Tool lubrication System (Rotary Tricone)		✓
Drill pipe thread greaser with reloadable tank that can also hold a disposable grease bucket		✓
Remote Fill; includes auto lube system, hydraulic reservoir and compressor remote fill		✓

	Standard	Optional
COLD WEATHER PACKAGES		
Cold weather package for temperatures 0 to –20 °C (32 to –4 °F); Includes water injection tank heater, machinery house heaters		✓
Extreme Cold weather package for temperatures –20 to –40° C (–4 to –40° F); Includes heated and enclosed compressor cooler compartment, insulated machinery house with rubber vent flaps and two (2) heaters (15 kW [20 hp] each), water injection tank heater and heat tape for water injection piping (ordered with Premium Cab, which also includes dual pane glass and heated/ventilated operator seat)		✓
MISCELLANEOUS		
Canadian Code Material		✓
Front Tow Bar Assembly		✓
Rear Tow Hooks (Not available w/ Hydraulic Dust Curtains		✓
Emergency Stop Trip Cable (Ground Level)		✓
Mechanical Safety Locks for Leveling Jacks		✓
Amber Strobe Lights (One on Mast, One on Cab)		✓
Fire Suppression Interface (fire suppression supplied locally)		✓

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at **www.cat.com**

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(Global)

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