



Cat[®] MD6420

Rotary Blasthole Drill
(13 or 16 m Mast)

Specifications

13- or 16-Meter Mast Configuration

Hole diameter	Up to 311 mm (12.25 in)
Depth single pass (16 m config)	16.46 m (54 ft)
depth multi-pass	Up to 65.2 m (214 ft)
Depth single pass (13 m config)	13.4 m (44 ft)
depth multi-pass	Up to 74.4 m (244 ft)

Operating Temperature

Min. ambient rating (standard)	-28°C (-20°F)
Cold weather option	-40°C (-40°F)
Max. ambient rating (standard)	52°C (125°F)
Altitude	Up to 4 572 m (15,000 ft)

Pull-down/Hoisting Capacity

Pull-down capacity	Up to 383 kN (86,000 lbf)
Hoist capacity	Up to 15 970 kg (35,207 lbf)
Drilling feed rate	0-19 m/min (0-61 fpm)
Retract rate	0-33.5 m/min (0-110 fpm)
Pull-down cylinder stroke (16 m config)	9.14 m (360 in)
Head travel (16 m config)	18.29 m (720 in)
Pull-down cylinder stroke (13 m config)	7.62 m (300 in)
Head travel (13 m config)	15.24 m (600 in)
Type	Open-loop hydraulic (stationary barrel, moving rod)
Number of cylinders	2
Cylinder bore	165 mm diameter (6.5 in)
Cylinder rod	127 mm diameter (5 in)

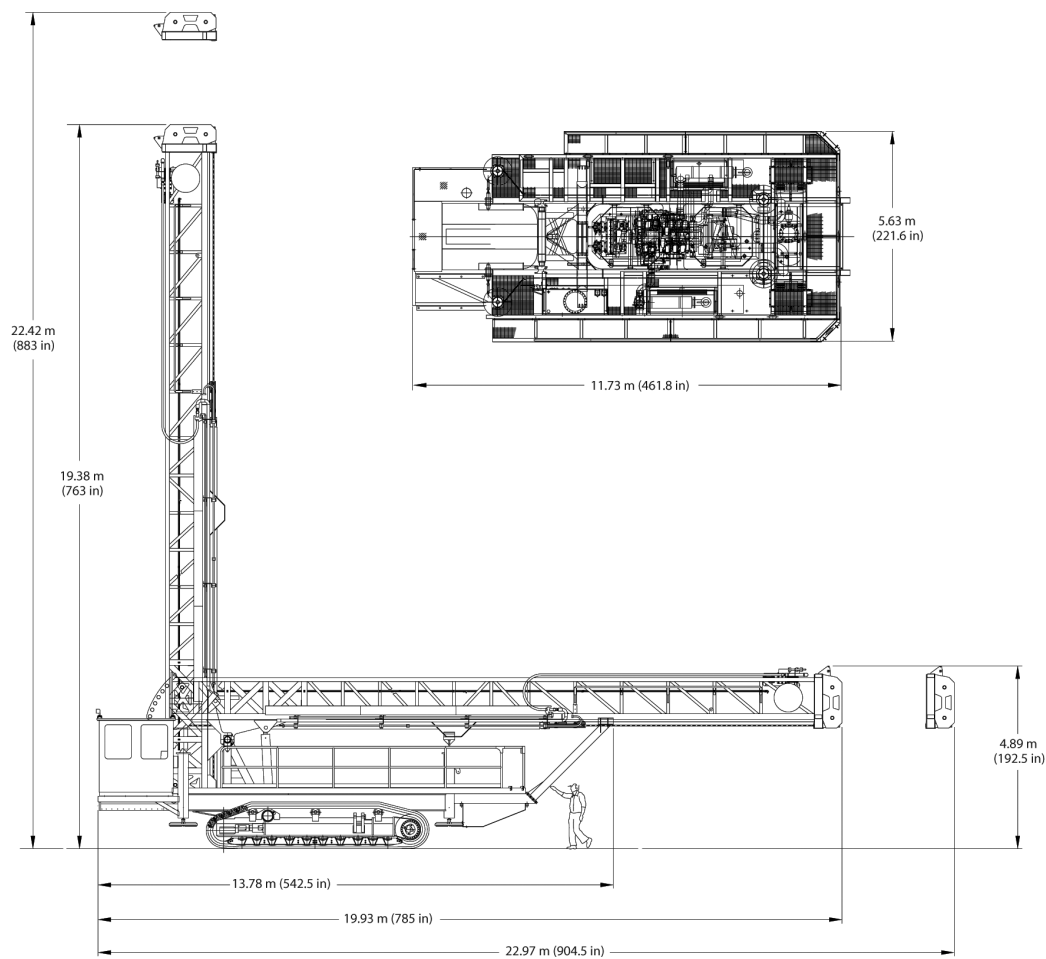
Pull-down/Hoisting Capacity (continued)

Cable type	29 mm (1.125 in) DYFORM 8
Cable sheaves (cylinder)	457 mm OD (18 in)
Cable sheaves (top and bottom)	457 mm OD (18 in)
Sheave pins with roller bearing	70 mm (2.75 in) diameter
Sheave guards	Standard at bottom plate
Adjustable head guide shoes	Steel with replaceable Nylatron

Rotary Drive System

Rotation speed optional	0-110 rpm, 0-150 rpm
Torque	0-15 185 Nm (0-11, 200 ft-lb)
Horsepower capacity	216 kW (290 hp)
Gearbox	Casting design
Main thrust bearing	Taper roller
Lubrication	Oil-flooded
Gearing	Straight spur
Ratio	16 to 1
Drive motor	See hydraulic system

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Cooler Assembly

Radiator-CAC-Oil Cooler Assembly Cat® C27 (Non-cert, TierII)

Single, front-end mounted

Cooler width	2 896 mm (114 in) dual fan
Cooler height	1 651 mm (65 in) dual fan
Fan	1 168 mm (46 in) diam, two fans, 16 blades
Fan speed	1 700 rpm
Fan guard	Welded
Engine radiator Top tank	Sealed deaeration tank, pressure cap, overflow tube & sight glass
Standard ambient rating	52° C (125° F)

Radiator-Oil Cooler Assembly Cummins QST-30 (Tier II)

Single, front-end mounted

Cooler width	2 896 mm (114 in) dual fan
Cooler height	1 651 mm (65 in) dual fan
Fan	1 168 mm (46 in) diam, two fans, 16 blades
Fan speed	1 700 rpm
Fan guard	Welded

Engine radiator Top tank

Sealed deaeration tank, pressure cap, overflow tube & sight glass

Standard ambient rating 52° C (125° F)

Radiator-CAC-Oil Cooler Assembly Cummins QST-30

Split-mounted on opposite sides of the deck

Cooler width	1 835 mm (72.25 in) each unit
Cooler height	1 835 mm (72.25 in) each unit
Fan	1 219 mm (48 in) diam, one fan, 10 blades
Fan speed	1 525 rpm
Fan guard	Welded
Engine radiator Top tank	Sealed deaeration tank, pressure cap, overflow tube & sight glass
Standard ambient rating	52° C (125° F)

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Compressor

Compressor (Standard)

Type	Oil-flooded, single-stage screw
Discharge air flow (sea level)	56.6 m³/min (2,000 cfm)
Max. operating pressure	6.9 bar (100 psi)
Air cleaner	
Type	Dry-type with safety element
Model	SRG 20
Oil cooling	Air-to-oil cooler, thermostatically controlled
Oil separation	Vertical barrier element, pre-separation in 167 l (44 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

Compressor (Optional)

Type	Oil-flooded, single-stage screw
Discharge air flow (sea level)	67.9 m³/min (2,400 cfm)
Max. operating pressure	6.9 bar (100 psi)
Air cleaner	
Type	Dry-type with safety element
Model	SRG 29
Oil cooling	Air-to-oil cooler, thermostatically controlled
Oil separation	Vertical barrier element, pre-separation in 167 l (44 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

Compressor (Optional)

Type	Oil-flooded, single-stage screw
Discharge air flow (sea level)	42.5 m³/min (1,500 cfm)
Oil separation	Vertical barrier element, pre-separation in 189 l (50 gal) sump, vertical
Max. operating pressure	10.3/24.1/34.4 bar (150/350/500 psi)

Engine

Engine (Standard)

Manufacturer	Caterpillar
Model	C27 Tier II
Rated horsepower	597 kW (800 hp)
Full load	2 100 rpm
Starting system	24 V DC
Safety shut-down system	Energized to run
Air cleaner	
Type	Dry-type with safety element
Model	SRG 20
Batteries	Four (4) 8-D
Muffler	152 mm (6 in) inlet and outlet
Fuel tank	1 514 l (400 gal), optional 1 703 l (450 gal)
Turbo and manifold covers	Blankets and/or exhaust wrap

Engine (Optional)

Manufacturer	Cummins
Model	QST-30
Rated horsepower	(Non-cert) 634 and 783 kW (850 and 1,050 hp) (Tier II) 783 kW (1,050 hp)
Full load	2 100 rpm
Starting system	24 V DC
Safety shut-down system	Energized to run
Air cleaner	
Type	Dry-type with safety element
Model	SRG 29
Batteries	Four (4) 8-D
Muffler	152 mm (6 in) inlet and outlet
Jacket water cooling and/or CAC	
Fuel tank	1 514 l (400 gal), optional 1 703 l (450 gal)
Turbo and manifold covers	Blankets and/or exhaust wrap

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Engine (continued)

Engine (Optional)

Manufacturer	Caterpillar
Model	C27 Tier II
Rated horsepower	652 kW (875 hp)
Full load	2 100 rpm
Starting system	24 V DC
Safety shut-down system	Energized to run
Air cleaner	
Type	Dry-type with safety element
Model	SRG 20
Batteries	Four (4) 8-D
Muffler	152 mm (6 in) inlet and outlet
Jacket water cooling and/or CAC	
Fuel tank	1 514 l (400 gal), optional 1 703 l (450 gal)
Turbo and manifold covers	Blankets and/or exhaust wrap

Mast

Construction	ASTM 500 grade B rectangular tubing, welded
Main chord size	
Front	203 mm (8 in) x 102 mm (4 in) x 9.5 mm (0.375 in)
Rear	152 mm (6 in) x 152 mm (6 in) x 13 mm (0.5 in)
Pivot and raising area	Rectangular tubing A frame, reinforced in high-stress areas
Hydraulic lines	Pressure-rated steel hydraulic tubing
Hose rack	Sheet steel trough for moving hoses

Mast-Elevating Cylinders

Number of cylinders	2
Cylinder bore	254 mm (10 in) diameter
Cylinder rod	114 mm (4.5 in) diameter
Cylinder stroke	1 118 mm (44 in)
Lift capacity each cylinder	960 kN (215,875 lbf)
Cylinder connection pins	89 mm (3.5 in) diameter
Counterbalance valves	Internal for each cylinder

Operator's Cab

Location	To the right from the mast if facing rear deck from the rear end
Type	Shock-mounted; two-man, integrated FOPS certified
Length at floor	1 981 mm (78 in)
Width at floor	1 518 mm (59.75 in)
Floor area	3 m ² (32.40 ft ²)

Height inside	1 943 mm (76.50 in)
Construction	12-gauge steel welded to formed channel and angle supports
Windows	6 mm (0.25 in) tinted safety glass in rubber mounting
Number of windows	10
Number of doors	2 with windows (included in above)
Left door to work 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	Fixed folding jump seat
Insulation, wall and ceiling	51 mm (2 in) thermal
Insulation, floor	9.5 mm (0.375) in closed-cell foam with 3 mm (0.125) in pyramid vinyl surface
Door latches	Heavy-duty latches with lockable handles
Sound levels	80 dB(A) or less
Climate control	Wall-mounted, AC/heating/pressurizing unit
Other	Window wipers and washers

Operator's Controls

Location

Console at front and side cab wall, placed 45° to the deck

Standard Engine Controls

Coolant temperature/high temperature shut-off

Oil pressure (low pressure shut-off)

Start button

Stop button

Tachometer

Throttle control

Engine hourmeter

Fuel level

Voltmeter

Standard Compressor Controls

Compressor temperature gauge

Air pressure gauge

Air shut-off control (electric) (high air temperature)

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Operator's Controls (continued)

Standard Drilling Controls

Leveling jacks controls (hydraulic)
HOB0/Break-out wrench control (electric)
Mast elevation control (hydraulic)
Pull-down control (electric over hydraulic)
Pull-down pressure control (pilot hydraulic)
Rotation control (electric over hydraulic)
Propel controls (electric over hydraulic)
Carousel in/out control (electric)
Carousel indexing (electric)
Mast lock (electric)
Dust/water injection (electric)
Dust curtain (electric)
Deck wrench control (electric)
Level indicator (electric)
On/off light switch (electric)
Drill hourmeter (gauge)
Wiper/washer controls (electric)

Optional

Filter indicators for engine and compressor intake, filter indicators for hydraulic fluid system, indicator lights for interlocks, rotary head rpm gauge and heating systems control

Undercarriage

Type	Excavator type
Pad width	750 mm (29.5 in)
Pad type	Triple grouser
Rollers	Sealed, oil-flooded
Number of rollers on each side	10
Upper track chain support	Three (3) carrier rollers
Rock guards/chain guards	Standard full-length guards
Overall length	5 944 mm (234 in) (variable with adjustment)
Final drive	Independent hydrostatic motors
Drive horsepower per track	216 kW (290 hp) maximum
Brakes	Spring set, hydraulic release
Brake release	Automatic
Tram speed max	2.27 km/h (1.41 mph)
Gradeability mast down	
CDU	46%
CUH	21%
Rear axle	254 mm (10 in)
Front	Three-point oscillating type
Track adjustment means	Hydraulic with grease gun
Track drive disconnect	Standard (manual)

Mainframe, Decks & Walkways

Main rails	203 mm (8 in) x 406 mm (16 in) x 13 mm (0.5 in) ASTM 500 grade B
Construction	Electric welded
Jacks, mast pivot and deck	Welded integrally to mainframe
Tools and battery box	Lockable door, below front deck
Machine deck	Access both sides
Hand rails	48 mm (1.9 in) diameter x 1 092 mm (43 in) high
Tow hooks	Welded, two (2) front

Leveling Jacks

Number	4
Location	2 front, 2 rear
Cylinder bore	178 mm (7 in)
Cylinder rod diameter	102 mm (4 in)
Cylinder stroke	1219 mm (48 in), 1 524 mm (60 in) optional
Lift capacity	428 kN (96,163 lbf) each
Pad connection	Ball and socket
Pad diameter	762 mm (30 in) (non-drill end) 914 mm (36 in) (drill end)
Counterbalance valves	External at each cylinder
Inner extension tube	229 mm (9 in) OD, 12.7 mm (0.5 in) wall thickness

Drill Table and Work Deck

Table height off ground	1 448 mm (57 in)
Deck floor material	Non-skid floor plate
Drill deck length	2 159 mm (85 in) work deck
Drill deck width	2 819 mm (111 in)
Hand rails	48 mm (1.9 in) diameter x 1 092 mm (43 in) high
Wide walkways	Around the drill deck
Viewing hatch	In the rear deck; hydraulically operated from the cab

Dust Curtain (Optional Hydraulic Lifters, Front and Rear)

Material	6.4 mm (0.25 in) rubber nylon reinforced
Enclosed area	4.2 m ² (45.14 ft ²)
Split for access	Front and rear with 305 mm (12 in) overlap
Dust deflector	Natural rubber seal, 18 mm (0.5 in) thick, 356 mm (14 in) diameter
Location	Directly below table bushing

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Hydraulic System

Left Track/Rotation Pump (Closed-Loop)

Type	Axial piston, variable volume
Max. flow	378.5 l/min (100 gpm)
Pressure Rating	400 bar (5,800 psi)

Right Track Pump (Closed-Loop)

Type	Axial piston, variable volume
Max. flow	378.5 l/min (100 gpm)
Pressure Rating	400 bar (5,800 psi)

Accessory Circuit/Feed Pump (Open-Loop)

Type	Axial piston, variable volume
Max. flow	378.5 l/min (100 gpm)
Pressure Rating	400 bar (5,800 psi)

Fan Circuit Pump (Open-Loop)

Type	Oil gear
Max. flow	216/216 l/min (57/57 gpm) dual fan
Pressure Rating	241 bar (3,500 psi)

Track Drive Motors (2)

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

Rotation Drive Motors (2)

Type	Axial piston fixed displacement, qty. 2
Pressure Rating	345 bar (5,000 psi)

Fan Drive Motors

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 (optional)
Charge	3 micron 1 per loop
Main return	12 micron
Case return	12 micron

Hydraulic System (continued)

Oil Cooling System (Hydraulic Tank)

Reservoir	1 208 l (319 gal) with sight and temperature gauge
Reservoir breather	Atmospheric, filtered breather

Lubrication System

Centralized manual (optional auto lubrication)

Accessories, Tools & Handling Equipment

Drill Pipe (optional)

Diameter	178 mm (7.0 in), 194 mm (7.625 in), 219 mm (8.625 in) or 235 mm (9.25 in)
Wall thickness	25.4 mm (1 in)
Length	(standard for 16 m config) 7.62 m (25 ft), two pipes coupled together plus bit sub
Threads	Depends on pipe OD

Diameter	Wall thickness	Thread	Pipe Length
178 mm (7.0 in)	25 mm (1 in)	4.5 Beco	7.62 m (25 ft)
178 mm (7.0 in)	25 mm (1 in)	4.5 Beco	12.19 m (40 ft)
194 mm (7.625 in)	25 mm (1 in)	6 Beco	7.62 m (25 ft)
194 mm (7.625 in)	25 mm (1 in)	6 Beco	12.19 m (40 ft)
219 mm (8.625 in)	25 mm (1 in)	6 Beco	7.62 m (25 ft)
219 mm (8.625 in)	25 mm (1 in)	6 Beco	12.19 m (40 ft)
235 mm (9.25 in)	25 mm (1 in)	6 Beco	7.62 m (25 ft)

Top Adapter Sub

Diameter	Depends on pipe diameter
Wall thickness	25 mm (1 in)
Length	914 mm (36 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)
Length	Up to 2 286 m (90 in)
Top thread	Depends on pipe diameter
Bottom thread	Depends on pipe diameter
Table bushing	Roller-type or two-piece with replaceable liner

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Accessories, Tools & Handling Equipment

Deck Wrench

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

HOBOW Break-Out Wrench

Location	Lower left, outside mast
Support	Mast-mounted
Wrench type Operated Break Out)	Patented HOBOW (Hydraulic
Power	Hydraulic cylinders (4)

Pipe Rack (Inside the Mast)

Carousel with stationary pods and breaker plates	
16 m configuration (standard)	
4 pipes: 7.62 m (25 ft) pipe	178 mm (7.0 in), 194 mm (7.625 in), 219 mm (8.625 in), 235 mm (9.25 in) OD
16 m configuration (optional)	
4 pipes: 12.19 m (40 ft) pipe	178 mm (7.0 in), 194 mm (7.625 in), 219 mm (8.625 in), OD
13 m configuration (standard)	
4 pipes: 12.19 m (40 ft) pipe	178 mm (7.0 in), 194 mm (7.625 in), 219 mm (8.625 in), 235 mm (9.25 in) OD
13 m configuration (standard)	
5 pipes: 12.19 m (40 ft) pipe	178 mm (7.0 in), 194 mm (7.625 in), 219 mm (8.625 in) OD
Pipe rack swing	Hydraulic cylinders (2)
Pipe rack index locking pin	Hydraulic cylinder with

Winch

Location	Mounted on mast
Rating	3 629 kg (8,000 lb)
Cable size	13 mm (0.5 in)
Safety hook	Swivel-type positive lock
Brakes	Automatic

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Basic Shipping Weights and Dimensions

Quantity	Description of Goods	Approximate Dimensions
Truck one (1)	Model MD6420 (13 or 16 m mast) Rotary Blasthole Drill to include toolbox (stowed inside: bit basket, horseshoe bushing, lifting bk sub on deck; Operator's manual and blow-down hose in cab	11.58 m (38 ft 0 in) L x 4.44 m (14 ft 7 in) W x 4.04 m (13 ft 3 in) H 68 039 kg (150,000 lb)
Truck two (2)	Model MD6420 (13 or 16 m mast) Mast assembly to include dust hood, large shock sub with adapter and safety sling stowed within	21.95 m (72 ft 0 in) L x 2.13 m (7 ft 0 in) W x 2.74 m (9 ft 0 in) H 24 494 kg (54,000 lb)
Truck three (3)	Walkways for MD6420 (13 or 16 m mast)	5.3 m (17 ft 6 in) 0.81 m (2 ft 8 in) W x 1.55 m (5 ft 1 in) H 680 kg (1,500 lb)
Truck three (3)	Walkways for MD6420 (13 or 16 m mast)	4.3 m (14 ft 10 in) L x 0.79 m (2 ft 7 in) W x 1.45 m (4 ft 9 in) H 635 kg (1,400 lb)
Truck three (3)	Deck piece for MD6420 (13 or 16 m mast)	4.14 m (13 ft 8 in) L x 0.66 m (2 ft 2 in) W x 1.47 m (4 ft 10 in) H 635 kg (1,400 lb)
Truck three (3)	Cab half for MD6420 (13 or 16 m mast)	3.45 m (11 ft 4 in) L x 1.42 m (4 ft 8 in) W x 1.52 m (5 ft 0 in) H 725 kg (1,600 lb)
Truck three (3)	Additional mast rests for MD6420 (13 or 16 m mast) (mounted off front end of rig)	3.05 m (10 ft 0 in) L x 2.24 m (7 ft 3 in) W x 0.41 m (1 ft 4 in) H 425 kg (1,600 lb)

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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