

MD6420

Rotary Blasthole Drill



10 Meter Mast Configuration

Hole diameter	229-311 mm	9-12.25 in
Depth single pass	Up to 10.29 m	Up to 33 ft 9 in
Depth multi-pass	Up to 63.40 m	Up to 208 ft

Operating Temperature

Minimum ambient rating (standard)	-28° C	-20° F
Cold weather option	-40° C	-40° F
Maximum ambient rating (standard)	52° C	125° F
Altitude	Up to 4572 m	Up to 15,000 ft

Pull-down/Hoisting Capacity

Pull-down capacity	Up to 383 kN	Up to 86,000 lbf
Hoist capacity	Up to 383 kN	Up to 86,000 lbf
Drilling feed rate	0-33.5 m/min	0-110 ft/min
Retract rate	0-33.5 m/min	0-110 ft/min
Pull-down cylinder stroke	6.10 m	240 in
Head travel	12.2 m	480 in
Type	Closed-loop hydraulic (stationary rod, moving barrel)	
Number of cylinders	1	
Cylinder bore – diameter	203 mm	8 in
Cylinder rod – diameter	114 mm	4.5 in
Cable type – 29 mm (1.125 in)	DYFORM 8	
Cable sheaves (cylinder) – outside diameter	457 mm	18 in
Cable sheaves (top and bottom) – outside diameter	457 mm	18 in
Sheave pins with roller bearing – diameter	70 mm	2.75 in
Sheave guards	Standard at bottom plate	
Adjustable head guide shoes	Steel with replaceable Nylatron	

Rotary Drive System

Rotation speed	0-110 rpm, 0-150 rpm optional	
Torque	0-15 185 N·m	0-11, 200 lbf-ft
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	

Cooler Assembly

Radiator-CAC-Oil Cooler Assembly Cat® C27 (Tier 2)

Single, front-end mounted		
Cooler width – dual fan	2896 mm	114 in
Cooler height – dual fan	1650 mm	65 in
Fan	1168 mm (46 in) diameter, two fans, 16 blades	
Fan speed	1,700 rpm	
Fan guard	Welded	
Engine radiator	Top tank	
	Sealed deaeration tank, pressure cap, overflow tube and sight glass	
Standard ambient rating	52° C	125° F



MD6420 Rotary Blasthole Drill Specifications

Cooler Assembly (continued)

Radiator-Oil Cooler Assembly Cummins QST-30 (non-cert, Tier 2)

Single, front-end mounted/split on TII		
Cooler width – dual fan	2896 mm	114 in
Cooler height – dual fan	1650 mm	65 in
Fan	1168 mm (46 in) diameter, two fans, 12 blades	
Fan speed	1,700 rpm	
Fan guard	Welded	
Engine radiator		
Top talk	Sealed deaeration tank, pressure cap, overflow tube and sight glass	
Standard ambient rating	52° C	125° F

Radiator-CAC-Oil Cooler Assembly Cummins QST-30

Single, front end mounted for non-cert		
Split-mounted on opposite sides of the deck for TII		
Cooler width – each unit	1835 mm	72.25 in
Cooler height – each unit	1835 mm	72.25 in
Fan	1219 mm (48 in) diameter, 1 fan/cooler, 10 blades	
Fan speed	1,525 rpm	
Fan guard	Welded	
Engine radiator		
Top talk	Sealed deaeration tank, pressure cap, overflow tube and sight glass	
Standard ambient rating	52° C	125° F

Compressor (Standard)

Type	Oil-flooded, single-stage screw	
Discharge air flow (sea level)	56.6 m ³ /min	2,000 ft ³ /min
Maximum 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 m ³ /min	2,400 ft ³ /min
Maximum operating pressure	6.9 bar	100 psi
Air cleaner		
Type	Dry-type with safety element	
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	

Type (high-pressure)	Oil-flooded, two-stage screw	
Discharge air flow (sea level)	42.5 m ³ /min	1,500 ft ³ /min
Oil separation	Vertical barrier element, pre-separation in 189 L (50 gal) horizontal sump (T-tank)	
Maximum operating pressure	10.3/24.1 bar	150/350 psi

Type (high-pressure)	Oil-flooded, two-stage screw	
Discharge air flow (sea level)	42.5 m ³ /min	1,500 ft ³ /min
Oil separation	Vertical barrier element, pre-separation in 189 L (50 gal) horizontal sump (T-tank)	
Maximum operating pressure	10.3/24.1/34.4 bar	150/350/500 psi

Engine (Standard)

Manufacturer	Caterpillar	
Model	C27 Tier 2	
Rated horsepower	597 kW	800 hp
Full load	2,100 rpm	
Starting system	24V DC	
Safety shut-down system	Energized to run	
Air cleaner		
Type	Dry-type with safety element	
Batteries	Four (4) 8-D	
Muffler – inlet and outlet	152 mm	6 in
Fuel tank	1514 L	400 gal
Optional	1703 L	450 gal
Manifold covers	Blankets and/or exhaust wrap	

MD6420 Rotary Blasthole Drill Specifications

Engine (Optional)

Manufacturer	Cummins	
Model	QST-30	
Rated horsepower	(Non-Cert) 634 and 783 kW (850 and 1,050 hp) (Tier 2) 783 kW (1,050 hp)	
Full load	2,100 rpm	
Starting system	24V DC	
Safety shut-down system	Energized to run	
Air cleaner		
Type	Dry-type with safety element	
Batteries	Four (4) 8-D	
Muffler – inlet and outlet	152 mm	6 in
Jacket water cooling and/or CAC		
Fuel tank	1514 L	400 gal
optional	1703 L	450 gal
Manifold covers	Blankets and/or exhaust wrap	

Engine (Optional)

Manufacturer	Caterpillar	
Model	C27 (Tier 2)	
Rated horsepower	634 kW	875 hp
Full load	2,100 rpm	
Starting system	24V 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 – inlet and outlet	152 mm	6 in
Jacket water cooling and/or CAC		
Fuel tank	1514 L	400 gal
Optional	1703 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 × 102 mm × 9.5 mm	8 in × 4 in × 0.375 in
Rear	102 mm × 152 mm × 9.5 mm	4 in × 6 in × 0.375 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 – diameter	203 mm	8 in
Cylinder rod – diameter	102 mm	4 in
Cylinder stroke	1118 mm	44 in
Lift capacity each cylinder	559 kN	125,650 lbf
Cylinder connection pins – diameter	57 mm	2.25 in
Counterbalance valves	Internal for each cylinder	

MD6420 Rotary Blasthole Drill Specifications

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	1981 mm	78 in
Width at floor	1518 mm	59.75 in
Floor area	3 m ²	32.40 ft ²
Height inside	1943 mm	76.50 in
Construction	12-gauge steel welded to formed 12-gauge channel and angle supports	
Windows (tinted safety glass in rubber mounting)	6.4 mm	0.25 in
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 (thermal)	51 mm	2 in
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

Air pressure gauge

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

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 control (electric)

Carousel indexing (electric)

Mast lock (electric)

Dust/water injection (electric)

Dust curtain (electric)

Deck wrench control (electric)

Level indicator

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

MD6420 Rotary Blasthole Drill Specifications

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	13	
Upper track chain support	Three (3) carrier rollers	
Rock guards/chain guards	Standard full-length guards	
Overall length (variable with adjustment)	5945 mm	234 in
Width over tracks	4102 mm	161.5 in
Final drive	Independent hydrostatic motors	
Drive horsepower per track – maximum	216 kW	290 hp
Brakes	Spring set, hydraulic release	
Brake release	Automatic	
Tram speed maximum	2.14 km/h	1.33 mph
Gradeability mast down	17%	
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 and Walkways

Main rails – ASTM 500 grade B	203 mm ×	8 in ×
	408 mm ×	16 in ×
	13 mm	0.5 in
Rectangular tubing heavily cross-braced and reinforced at high-stress areas		
Construction	Electric welded	
Jacks, mast pivot and deck	Welded integrally to mainframe	
Tools box	Lockable door, below front deck	
Machine deck	Access both sides	
Hand rails		
Diameter	48 mm	1.9 in
Height	1092 mm	43 in
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
Optional	1524 mm	60 in
Lift capacity – each	428 kN	96,163 lbf
Pad connection	Ball and socket	
Pad diameter		
Non-drill end	762 mm	30 in
Drill end	914 mm	36 in
Counterbalance valves	External at each cylinder	
Inner extension tube		
Outside diameter	229 mm	9 in
Wall thickness	12.7 mm	0.5 in

Drill Table and Work Deck

Table height off ground	1448 mm	57 in
Deck floor material	Non-skid floor plate	
Drill deck length – work deck	2159 mm	85 in
Drill deck width	2819 mm	111 in
Hand rails		
Diameter	48 mm	1.9 in
Height	1092 mm	43 in
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 (rubber nylon reinforced)	6.4 mm	0.25 in
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	
Thickness	18 mm	0.5 in
Diameter	356 mm	14 in
Location	Directly below table bushing	

MD6420 Rotary Blasthole Drill Specifications

Hydraulic System

Left Track/Rotation Pump (Closed-Loop)

Type	Axial piston, variable volume	
Maximum flow	378.5 L/min	100 gpm
Operating pressure	380 bar	5,500 psi

Right Track/Pull-down Pump (Closed-Loop)

Type	Axial piston, variable volume	
Maximum flow	378.5 L/min	100 gpm
Operating pressure	380 bar	5,500 psi

Accessory Circuit Pump (Open-Loop)

Type	Oil gear	
Maximum flow	114/64 L/min	30/17 gpm
Operating pressure	230 bar	3,330 psi

Fan Circuit Pump (Open-Loop)

Type	Gear	
Maximum flow – dual fan	216/216 L/min	57/57 gpm
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, quantity 2	
Pressure rating	345 bar	5,000 psi

Fan Drive Motors

Type	Piston, bent axis	
Operating pressure	230 bar	3,500 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	

Oil Cooling System (Hydraulic Tank)

Reservoir – with sight and temperature gauge	1007 L	266 gal
Reservoir pressure	Atmospheric, filtered breather	

Lubrication System

- Centralized manual (optional auto lubrication)

Accessories, Tools and Handling Equipment

Drill Pipe (optional)

Diameter	178 mm, 194 mm, 219 mm	7.0 in, 7.625 in, 8.625 in
Wall thickness	25 mm	1 in
Length	10.67 m	35 ft
Threads	Depends on pipe outside diameter	

Diameter	Wall Thickness	Thread	Pipe Length
178 mm (7.0 in)	25 mm (1 in)	4.25 Beco	10.67 m (35 ft)
184 mm (7.625 in)	25 mm (1 in)	6 Beco	10.67 m (35 ft)
219 mm (8.625 in)	25 mm (1 in)	6 Beco	10.67 m (35 ft)

Top Adapter Sub

Diameter	Depends on pipe diameter	
Wall thickness	25 mm	1 in
Length	914 mm	36 in
Top thread – API reg.	140 mm	5.5 in
Bottom thread	Depends on pipe diameter	

Bit Sub

Diameter	Depends on pipe diameter	
Wall thickness	25 mm	1 in
Length	762 mm	30 in
Top thread	Depends on pipe diameter	
Bottom thread	Depends on bit diameter	
Table bushing	Roller-type or two-piece with replaceable liner	

Deck Wrench

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

MD6420 Rotary Blasthole Drill Specifications

Accessories, Tools and Handling Equipment (continued)

HOBO Break-Out Wrench

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

Pipe Rack (Inside the Mast)

Type	Carousel, with stationary pods and breaker plates	
Size of drill pipe		
5 pipes	178 mm, 194 mm, 219 mm	7.0 in, 7.625 in, 8.625 in
Length of drill	10.67 m	35 ft
Pipe rack swing	Hydraulic cylinders (2)	
Pipe rack index	Hydraulic cylinder with locking pin	

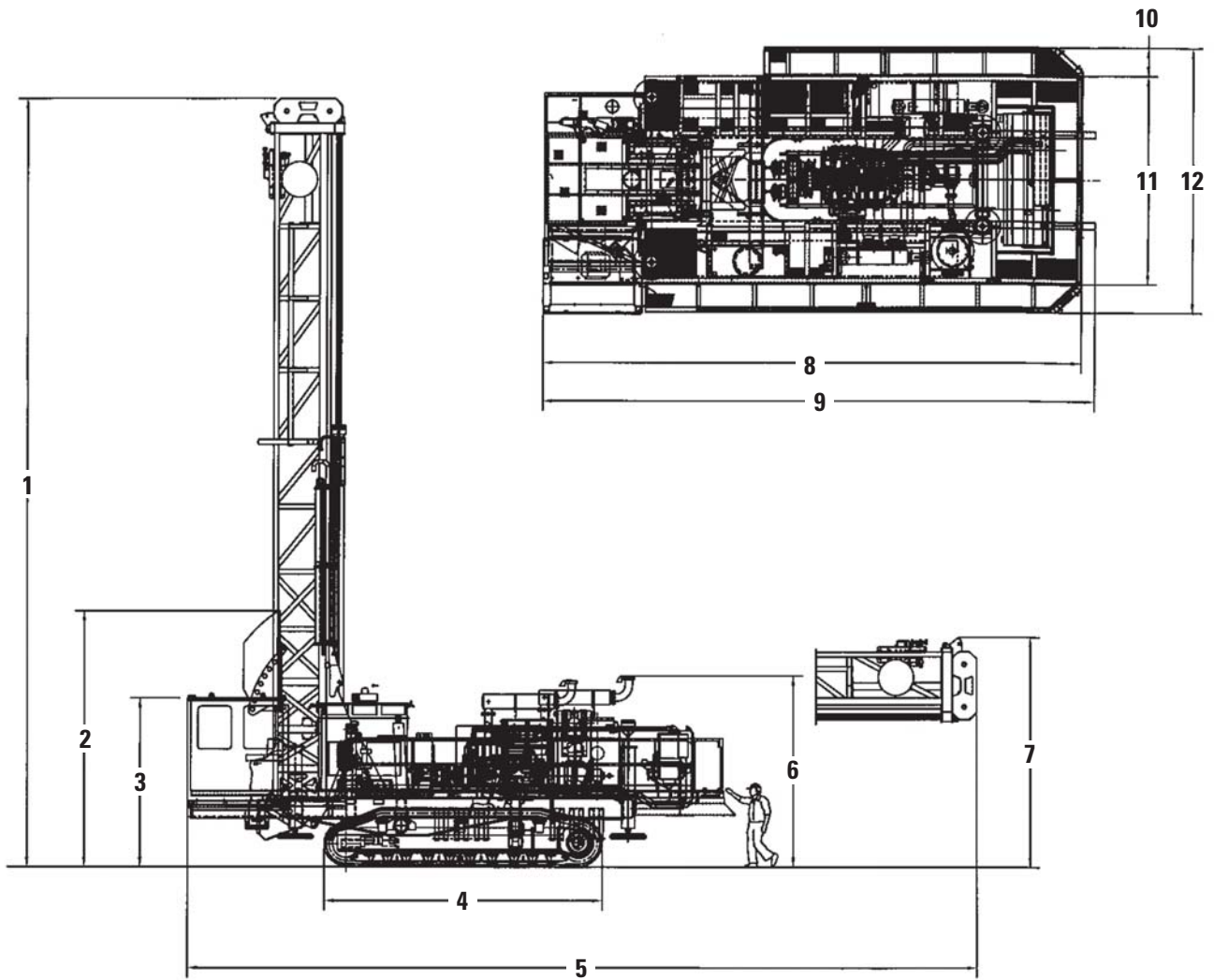
Winch

Location	Mounted on mast	
Rating	1587 kg	3,500 lb
Cable size	13 mm	0.5 in
Safety hook	Swivel-type positive lock	
Brakes	Automatic	

MD6420 Rotary Blasthole Drill Specifications

Dimensions

All dimensions are approximate.



1	16.31 m	642.19 in	7	4.89 m	192.44 in
2	5.44 m	214.32 in	8	11.46 m	451.33 in
3	3.59 m	141.28 in	9	11.73 m	461.89 in
4	5.95 m	234.71 in	10	0.60 m	23.63 in
5	16.88 m	664.65 in	11	4.43 m	174.37 in
6	4.06 m	160.00 in	12	5.63 m	221.62 in

MD6420 Rotary Blasthole Drill Specifications

Basic Shipping Weights and Dimensions

Quantity	Description of Goods	Approximate Dimensions	
Truck one (1)	Model MD6420 (10 m/32.8 ft mast) self-propelled Rotary Blasthole Drill to include cab half, with drill accessories stowed on deck		
	Length	13.16 m	43 ft 2 in
	Width	4.44 m	14 ft 7 in
	Height	3.91 m	12 ft 10 in
	Weight	68 039 kg	150,000 lb
Truck two (2)	Mast assembly Model MD6420 (10 m/32.8 ft mast) self-propelled Rotary Blasthole Drill with dust chute and safety sling stowed within		
	Length	15.64 m	51 ft 4 in
	Width	2.13 m	7 ft 0 in
	Height	2.46 m	8 ft 1 in
	Weight	20 865 kg	46,000 lb
Truck three (3)	Walkway with ladder/tool box		
	Length	3.48 m	11 ft 5 in
	Width	1.4 m	4 ft 7 in
	Height	1.40 m	5 ft 0 in
	Weight	635 kg	1,400 lb
Truck three (3)	Two (2) each walkways bundled together		
	Length	4.88 m	16 ft 0 in
	Width	0.74 m	2 ft 5 in
	Height	1.52 m	5 ft 0 in
	Weight	771 kg	1,700 lb
Truck three (3)	Two (2) each walkways bundled together to include 2 ladders stowed within rig		
	Length	4.14 m	13 ft 8 in
	Width	0.66 m	2 ft 2 in
	Height	1.47 m	4 ft 10 in
	Weight	581 kg	1,280 lb
Truck three (3)	Cab half		
	Length	2.56 m	101 in
	Width	0.61 m	24 in
	Height	2.36 m	93 in
	Weight	635 kg	1,400 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.

MD6420 Rotary Blasthole Drill

Materials and specifications are subject to change without notice.

Featured machines in photos may include additional equipment.

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