

DM-M3 Blasthole Drills

Multi-pass rotary drilling



Performance from the start

Coal overburden or hard rock, the DM-M3 just keeps on drilling. Designed with deep overburden drilling in mind, the robust DM-M3 is built to deliver unsurpassed availability and utilization for cast blasting in large coal mines.

The Epiroc DM-M3 has been proven in some of the toughest mining conditions. With drills that have logged over 100,000 hours of service, it's easy to see why some of the largest coal mines in the world call upon the DM-M3 to do the job. DM-M3 units have drilled millions of meters in coal overburden, but that's not all it can do. These rigs are also well suited for punching holes in hard rock, day in and day out.

For details on how the DM series can enhance your profitability, contact your Epiroc representative or visit epiroc.com.

Built for the job

The DM-M3 is a crawler-mounted, hydraulic tophead-drive multi-pass rotary drilling rig with an on-board depth capability of 195 ft (59.5 m) using 10-3/4 in diameter drill pipe and up to 235 ft (71.6 m) using 8-5/8 in diameter drill pipe with a 5-rod carousel. The standard drill pipe length is 40 ft (12.2 m) and the hole diameter ranges from 9-7/8 in to 12-1/4 in (251 to 311 mm). The single-pass depth is 37 ft (11.3 m).

Powerful performance

Hydraulic pulldown is rated at up to 90,000 lbf (400 kN) using a patented hydrostatic, closed-loop system acting through twin, double-rod hydraulic cylinders and cable. The DM-M3 also has a rotary head torque of up to 10,183 ft-lb (13.8 kNm) and a rotation speed from 0-200 rpm. It also offers ample air for bailing deep-angle holes with a 2,600 cfm (73.6 m³/min) air compressor.

Fast and reliable

The DM-M3's breakout and pipe handling system ensures quick removal and addition of drill pipe for multi-pass drilling. In addition, the hydraulic feed system with cable pulldown and pullback is designed to reduce the time needed to add and remove drill pipe.

"We like the DM-M3 because it allows us to drill a larger diameter hole, giving us more blasted material per meter. Having four DM-M3s at work drilling these large holes has enabled us to increase our blast production."

Denis Golubnichy, Chief Mining Engineer
at Karelsky Okatysh iron ore mine in Russia.

Designed for maximum productivity and value



+ Operator comfort

The DM-M3 features an insulated, pressurized cab with an adjustable swivel seat and excellent visibility. All operational functions are controlled from the driller's console, and the ergonomic layout allows operators to instantly switch from drilling to tramming for increased productivity. In addition, the electric-over-hydraulic controls are common across the DM series, making operation easy for drillers with DM series experience. Plus, with a rating of 80 dBA, the noise inside the cab is kept to a minimum for greater operator comfort.



+ Ease of maintenance

The deck layout on the DM series offers easy access to all major service components. Hydraulic system filters are also mounted externally for accessibility. To make service even easier, optional ground-level, quick-connect fittings are available for fast fill and evacuation of fuel, hydraulic oil, engine coolant, and other fluids. Plus, service is further streamlined by a single receiver tank with a hinged access door.



+ Enhanced safety

The DM-M3 is equipped with a number of features to help keep operators safe on the job. Features include a FOPS cab with double safety glass, remote hydraulic tower pinning and a pulldown over center valve — as well as leveling jacks and load-holding valves. The DM-M3 also has guards on rotating parts and safety shutdowns for temperature, low level, and pressure. Other features include spring-applied, hydraulic-released brakes on the tramming system.



Service and support

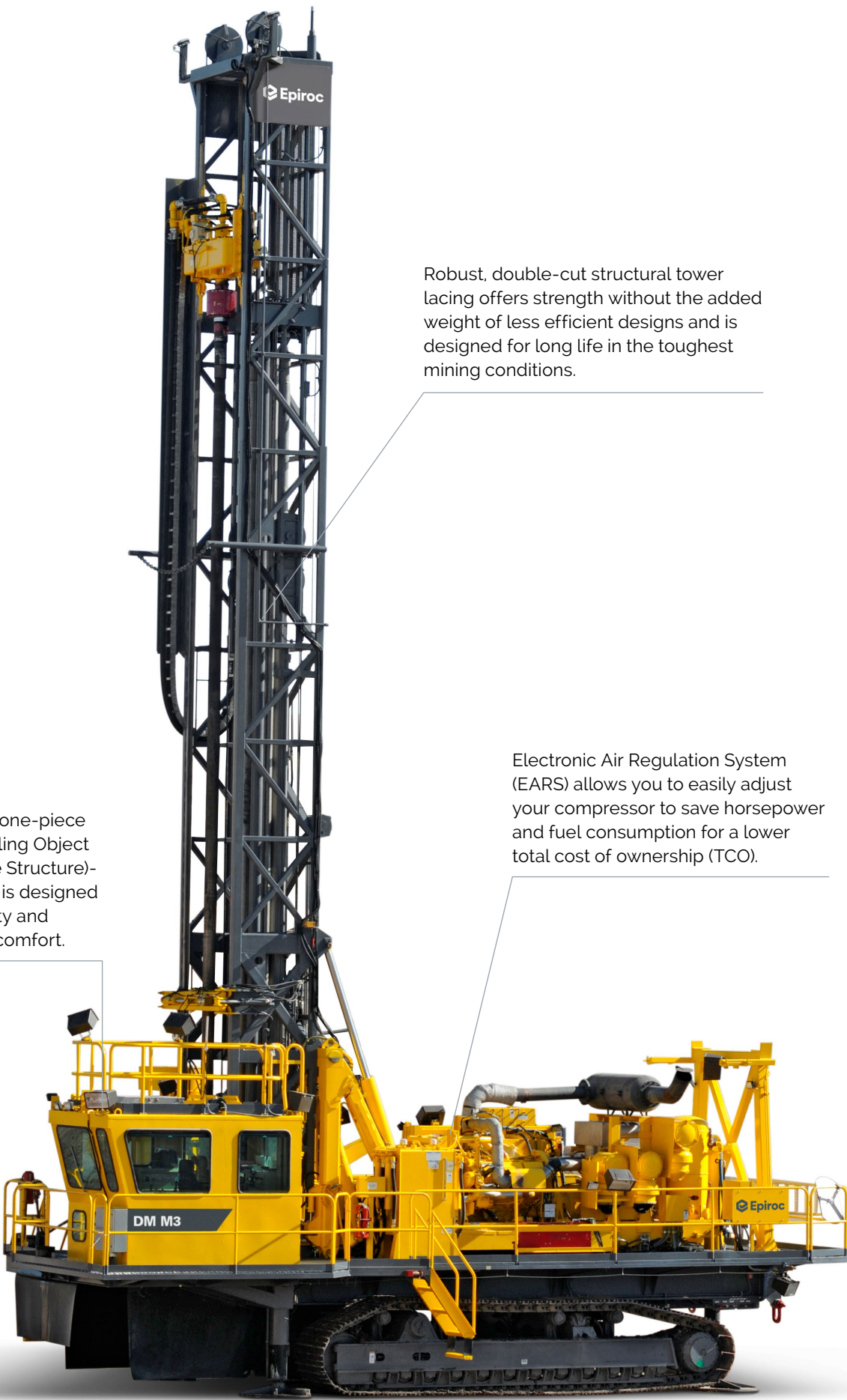
Epiroc offers several types of service agreements to meet your operational requirements and maximize your productivity:

Variable-price repairs
Service when you need it.

Fixed-price repairs
Service with controlled costs.

Equipment audit
Scheduled equipment quality control.

Preventive maintenance programs
Peace of mind so you can focus on your core business.



Robust, double-cut structural tower lacing offers strength without the added weight of less efficient designs and is designed for long life in the toughest mining conditions.

Spacious one-piece FOPS (Falling Object Protective Structure)-rated cab is designed for visibility and operator comfort.

Electronic Air Regulation System (EARS) allows you to easily adjust your compressor to save horsepower and fuel consumption for a lower total cost of ownership (TCO).



Technical specifications

Sub structure

Mainframe

- Weld-fabricated I-beam type using wide-flange structural steel beams for rails and crossbeams
- Designed by Epiroc, and weld fabricated by certified welders
- Radius gussets used for reinforcement rather than triangular gussets for additional strength — 146 lb/ft (217 kg/m)

Leveling jack

Type	Hydraulic cylinder
Quantity	Three (standard), Three larger (optional), Four (optional)
Jack pad diameter drill end	Standard three jacks or four jacks option: 40 in (101.6 cm) Large jack pads option: 54 in (137.2 cm)
Jack pad diameter non-drill end	Standard three jacks or four jacks option: 40 in (101.6 cm) Large jack pads option: 58 in (147.3 cm)
Position indication	"Jack up" indicator on console

Capacities

Fuel tank	650 gal (2,460 L) standard 1,050 gal (3,975 L) optional
Water tank	400 gal (1,514 L)
Hydraulic tank	150 gal (568 L)

Undercarriage and propel system

Make	Epiroc or Caterpillar 350
Mounting	Oscillating walking beam: 5" each side, total 10"
Total length	Epiroc: 22 ft 3 in (6.78 m); Caterpillar: 23 ft 2 in (7.07 m)
Take-up adjustment	Hydraulic slack adjustment; spring recoil
Rollers	Epiroc: 12 lower / 3 upper; Caterpillar: 12 lower / 4 upper
Location	Strategically located for load distribution relative to the tower position (vertical or horizontal)
Roller bearings	Sealed for life
Track pads	Epiroc: 42 in (1,067 mm); Caterpillar: 35.5 in (902 mm)
Drive	Hydrostatic closed loop through planetary gear speed reducers to drive sprockets
Propel motors	Two - Hydraulic, axial piston, fixed displacement rating (each): 188 HP (140 kW)
Propel speed range	Epiroc: 0 – 0.97 mph (0 - 1.56 km/h), Caterpillar: 0 – 1.0 mph (0 - 1.61 km/h)

Technical specifications

Tower, carousel and drill rod handling

Tower		
Tower construction	Cold-sawed and welded four main member with open front ASTM A500 Grade B rectangular tubing	
Tower raising	Two hydraulic cylinders; live tower (raise and lower with full carousel and rotary head at top of tower)	
Rod support	Hydraulic cylinder clamping and actuation to center drill rod	
Rated capacity		
Single pass depth	37 ft (11.3 m)	
Maximum hole depth	7-5/8 or 8-5/8 rod diameter: 235 ft (71.6 m) 9-1/4 or 10-3/4 rod diameter: 195 ft (59.5 m)	
Carousel (carousel internal to the tower with key-lock retention)		
Rod length	40 ft (12.2 m)	
Capacity	• Five pieces of 7-5/8 in or 8-5/8 in rod diameter (194 mm or 219 mm) • Four pieces of 9-1/4 in or 10-3/4 in (235 mm or 273 mm)	
Acuation	Indexed hydraulically with motor, pinion and bull gear	
Safety	• Drill pipe is held securely in carousel by "key lock design" mechanism • No bump system to prevent damage if carousel not stowed	
Drill rods		
Drill pipe diameter x 40 ft (12.2 m)	Thread	Suggested bit diameter
7-5/8 in (194 mm)	5-1/4 in BECO	9-7/8 in – 10-5/8 in (251 mm – 270 mm)
8-5/8 in (219 mm)	6 in BECO	10-5/8 in – 11 in (270 mm – 279 mm)
9-1/4 in (235 mm)	6 in BECO	11 in – 12-1/4 in (279 mm – 311 mm)
10-3/4 in (273 mm)	8 in BECO	12-1/4 in (311 mm)
Rotary head		
Speed range	Variable 0 – 200 RPM	
Torque	Variable 0 – 10,183 lbf-ft (0 – 13,806 Nm)	
Number of motors	Two	
Type of motor	Variable displacement axial piston	
Reduction	Two-stage spur gear (14.81:1)	
Horsepower	181 HP	
Travel length	46 ft 4 in (14.1 m)	
Feed system		
Pulldown capacity	Up to 90,000 lbf (400 kN)	
Pullback capacity	0 – 41,500 lbf (0 – 185 kN)	
Weight on bit	Variable, 0 – 90,000 lb (0 – 40,823 kg)	
Mechanism type	Two dual-rod hydraulic cylinders	
Number of cables – diameter	Two pulldown, two pullback – 1-1/8 in (28.6 mm)	
Number of sheaves – outside diameter	Eight – 21-5/8 in (55 cm)	
Feed speed	144 ft/min (43.9 m/min)	
Retract speed	138 ft/min (42.1 m/min)	

Technical specifications

Cab and controls

Cab	
• Thermally insulated and pressurized; shock-mounted; equipped with double safety glass • Adjustable swivel seat • Ergonomically designed wrap-around console • Two hinged and lockable doors • Falling Object Protective Structure (FOPS) certified • Full 360-degree walkway around the cab	
Controls (all drilling and propelling functions are electric over hydraulic, powered with ergonomically grouped controls)	
Right-hand section	Engine gauges and controls Tower raising and leveling jack systems
Center section	Major drill and propel controls (including breakout and rod changer carousel)
Left-hand section	Gauges for rotation RPM, compressor discharge temperature, air pressure, pulldown pressure and rotation pressure Controls for hoist, dust collector, joint lubricator, dust flaps and rod support (if included)
Hydraulic system	
• Three hydraulic pumps mounted on a three-hole gearbox directly driven by the engine prime motor • Two main pumps for rotation and feed while in the "drill" mode and propel when tramming • One two-section "double pump" for fans and other auxiliary functions	

Power package

Airend	
	2,600 cfm @ 110 psi (73.6 m³/min @ 7.6 bar)
Electronic Air Regulation System (EARS)	
• Standard on the DM-M3 • Compressor regulation • Two butterfly valves varying the inlet of the airflow (decreased airflow while maintaining constant restriction) • Optimal fuel efficiency while hole collaring • Reduced wear on drill string components	
Diesel engine/Electric motor (1,800 rpm)	
Diesel engine – Tier 2	CAT C32 – 1,050 HP (783 kW) Cummins QST30 – 1,000 HP (746 kw)
Electric motor*	WEG 6811 – 900 HP @ 50 Hz or 60 Hz (671 kW)

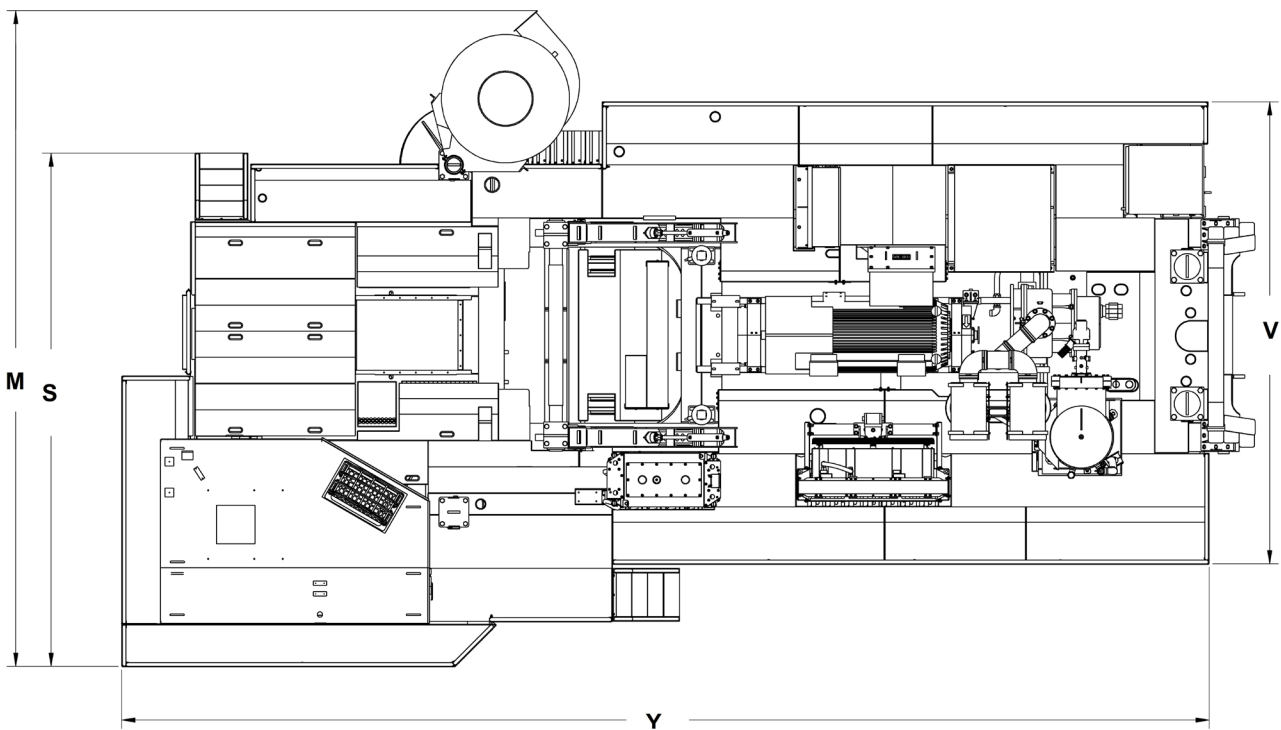
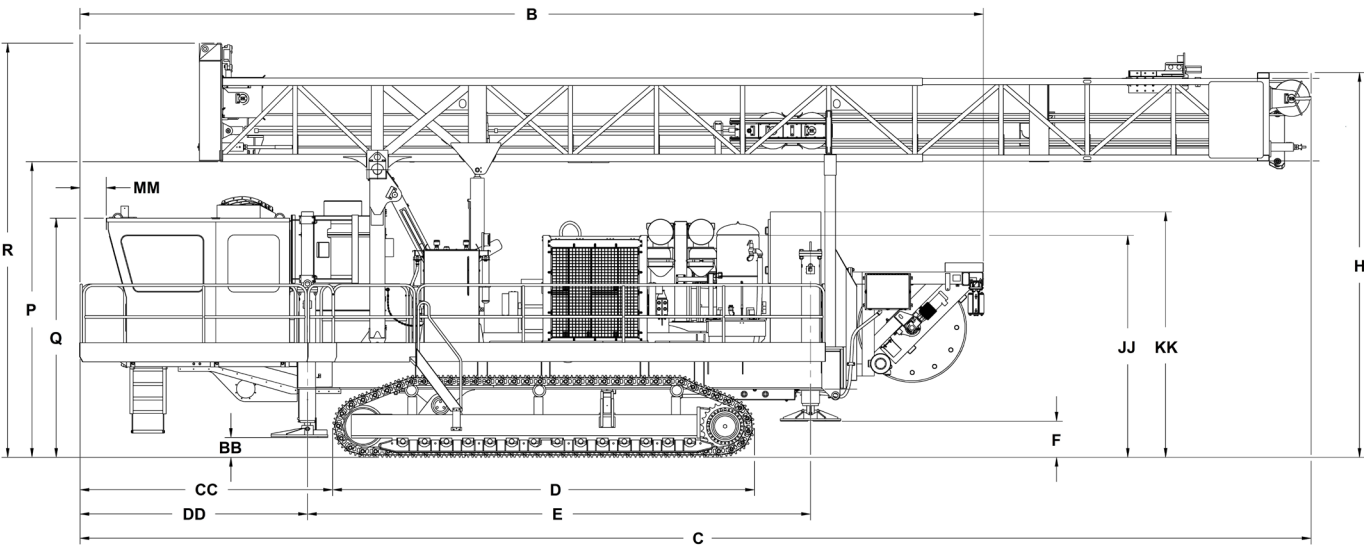
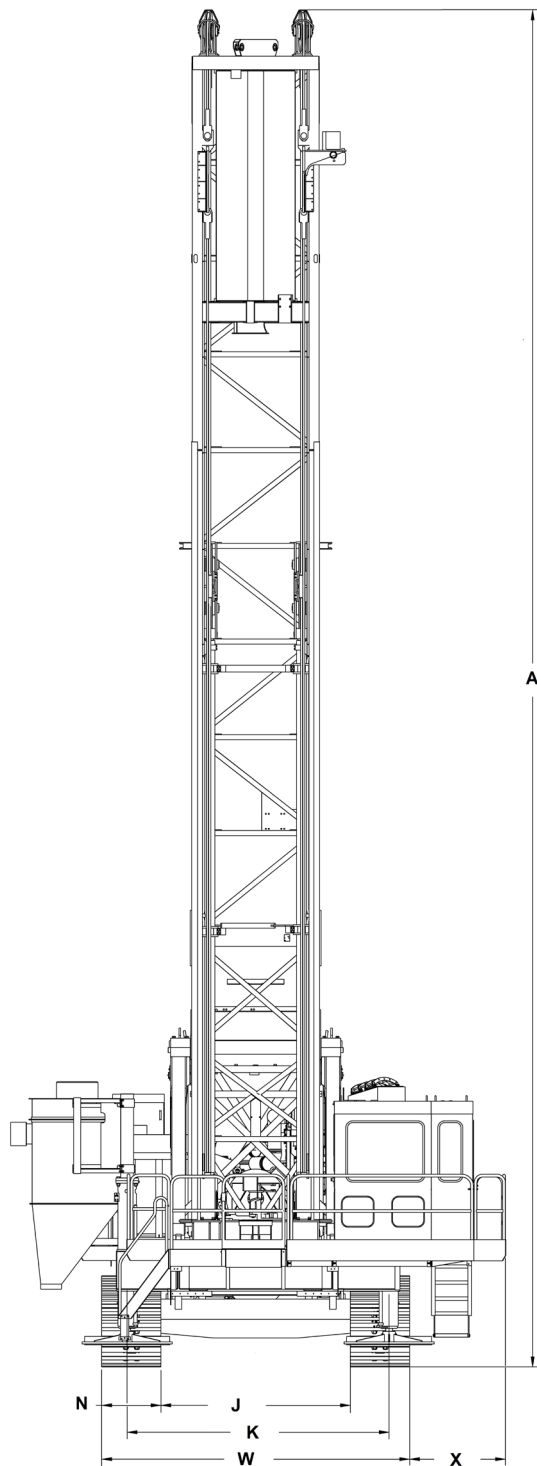
*Airend output differs between 50 Hz and 60 Hz operation.

Dimensions and weight

Operating weight	
Estimated weight	230,000 – 240,000 lb (104 – 109 tonnes)

Operating dimensions
(Dimensions for DM-M3 electric with Caterpillar tracks; dimensions may vary by machine and options)

	Description	Dimensions in (m)
A	Height – tower up	806 (20.48)
B	Length – tower up	598 (15.19)
C	Length – tower down	806 (20.46)
D	Length – undercarriage	278 (7.07)
E	Length – jack center to jack center	332 (8.43)
F	Height – jack to ground (non drill end)	23.9 (0.61)
H	Height – tower down (non drill end)	254 (6.45)
J	Width – track inside to track inside	113 (2.88)
K	Width – jack center to jack center	157 (3.99)
M	Width – overall	296 (7.52)
N	Width – track	35 (0.90)
P	Height – tower off	195 (4.96)
Q	Height – ground to cab top	158 (4.02)
R	Height – ground to tower (drill end, tower down)	273 (6.94)
S	Width – drill end (no dust collector)	232 (5.89)
V	Width – decking (non drill end)	208 (5.30)
W	Width – undercarriage assembly	184 (4.69)
X	Width – decking (cab end to undercarriage end)	58 (1.46)
Y	Length – decking	485 (12.32)
BB	Height – jack to ground (drill end)	13 (0.33)
CC	Length – decking edge to undercarriage edge (front view)	160 (4.06)
DD	Length – decking edge to jack center (front view)	143 (3.63)
JJ	Height – ground to cooler	146 (3.72)
KK	Height – ground to transformer	162 (4.11)
MM	Length – decking edge to cab edge	10 (0.25)



Optional equipment

**Following are some examples of available options.
For a comprehensive list, please contact your local
Epiroc Customer Center.**

- Cold-weather options for drill operation in extremely cold ambient conditions (-45° C)
- Upgrade to large jack pads (54 in front / 54 in rear) for three-jack installation
- Four-jack installation
- Epiroc 7SB dust collector with 9000 blower
- Cold-weather options for drill operation in extremely cold ambient conditions (-45° C)
- Ground-level emergency shutdown
- Angle drill package (0-30 degrees)
- Wiggins central service
- Head-up tram interlock
- Hydraulic test station
- Torque limit control
- Auto-thread lube
- Bit injection lube
- Water Injection
- Engine pre-lube
- Cable reel (**electric rig only**)

**United in performance.
Inspired by innovation.**

Performance unites us, innovation inspires us, and commitment drives us to keep moving forward. Count on Epiroc to deliver the solutions you need to succeed today and the technology to lead tomorrow.
epiroc.com

