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DML

Multi-pass rotary and DTH drilling



A legend in the drilling industry

Rugged, powerful and efficient, the DM series is designed for high-capacity drilling with unsurpassed availability and utilization for drilling industry applications.

Epiroc's heavy-duty DML and DM45/DM50 are some of the world's most popular drills for good reason. All three models have been proven in some of the toughest mining conditions, delivering productivity, reliability and low operating costs year after year. The DM series is so woven into the fabric of the industry that many operators learned to drill holes with a DML or DM45/DM50. Today you'll find these drills operating in more than 50 different countries around the world.

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

Built for the job

The DML is a crawler-mounted, hydraulic tophead-drive rig that's suitable for a variety of multi-pass rotary and DTH drilling applications. It's designed specifically for production blasthole drilling to depths of 175 ft (53.3 m) with a 30 ft (9.1 m) pipe change or 205 ft (62.5 m) with the optional 35 ft (10.7 m) pipe change.

Powerful performance

Feed pressure generates a pull-down of up to 60,000 lbf (267 kN), utilizing a diesel engine or an electric motor to drive the air compressor and hydraulic system. The powerful rotary tricone and DTH hammer drill delivers a hole diameter of 5 7/8 in to 10 5/8 in (150 mm to 270 mm) and can achieve a clean hole 32.5 ft (9.9 m) in single-pass applications or depths of up to 205 ft (62.5 m) in multi-pass applications.

Options to fit your application

Choose from a variety of engine brands and high- and low-pressure compressors to create the right configuration for your drilling operation. You can also add on-board automation capabilities with the optional Rig Control System Lite (RCS Lite) for added safety and productivity.



Designed for maximum productivity and value



+ Operator comfort

The DML features an insulated, air-conditioned, 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. The integrated A/C system is mounted on the side, so no roof access is required, and the central lubrication manifold streamlines maintenance. 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.



+ Enhanced safety

The DML is equipped with a number of features to help keep operators safe on the job. Features include a FOPS cab with safety glass, remote hydraulic tower pinning and a pulldown over-center valve — as well as leveling jacks and load-holding valves. The DML 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, and automation options can be added to further increase safety.



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.

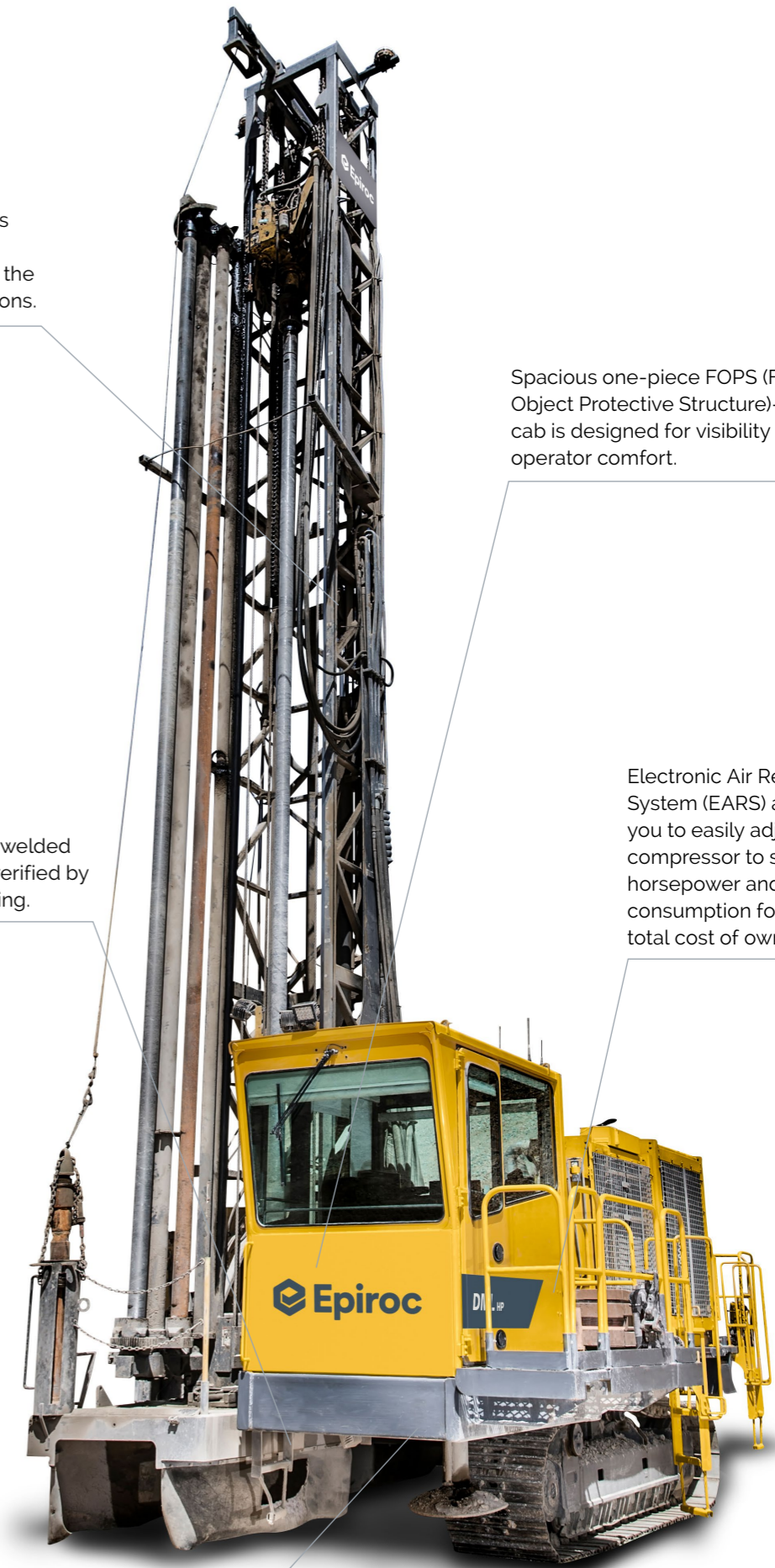
Robust, double-cut structural tower lacing offers strength without the added weight of less efficient designs and is designed for long life in the toughest mining conditions.

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

Main frame features welded rectangular tubing, verified by dynamic strain gauging.

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.

"Walking beam" oscillation yoke allows the rig to travel over uneven ground while reducing torsional stresses on the main frame.



Flexibility for the future

Add flexibility to your DM Series drill rig with Epiroc's Rig Control System (RCS) Lite. Built on the RCS 5 platform that comes standard on the Pit Viper series, RCS Lite offers a number of safety and interlock features. It also provides a convenient foundation to add more functionality and technology options in the future without a major rebuild of the machine. In addition, RCS Lite allows all Epiroc rotary drills to have the same onboard display and system for consistent operator training and service. It's a modular solution that delivers efficiency now, along with the opportunity to enhance your equipment down the road as your mining requirements grow.



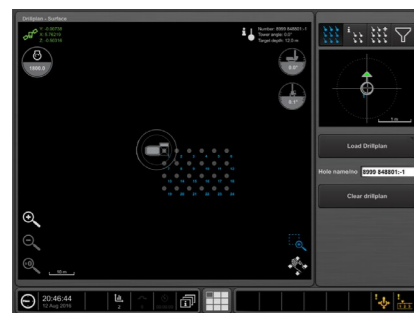
Home screen: all selections are done from the main menu.



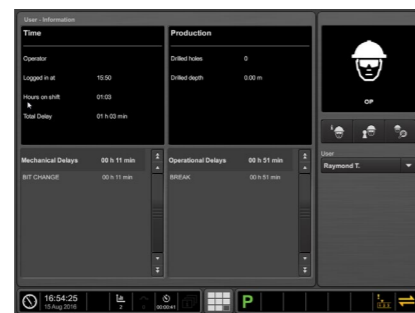
Drilling: shows information about pressures and flows for various systems during drilling.



Setup and propel: shows machine conditions during setup and while propelling.



Drill plan: shows the interactive drill plan.



User: sets the control system language. Logs in users to the control system and shows user information.



Performance: shows statistics about the machine and drilling consumables.

Technical specifications

Sub structure

Mainframe

- Rectangular tubing construction
- Designed by Epiroc, and weld fabricated by certified welders
- Designed with the latest FEA technology and verified by dynamic strain gauging

Leveling jack

| | |
|--------------------------------------|---|
| Type | Hydraulic cylinder |
| Quantity | Three (standard), Four (optional) |
| Calculated jack pad bearing pressure | Drill end: 68.9 psi (475 kPa) Non drill end (3 jacks): 66.7 psi (460 kPa) Non drill end (4 jacks): 59.9 psi (413 kPa) |
| Position indication | "Jack up" indicator lights on console |

Capacities

| | |
|-----------------------|--|
| Fuel tank | 380 gal (1,438 L) standard 680 gal (2,574 L) optional |
| Water tank (diesel) | 300 gal (1,136 L), 400 gal (1,514 L), 500 gal (1,893 L) or 700 gal (2,650 L) |
| Water tank (electric) | 300 gal (1,136 L) or 680 gal (2,574 L) |
| Hydraulic tank | 150 gal (568 L) |

Undercarriage and propel system

| | |
|--------------------|--|
| Make | Epiroc 3000L, Caterpillar 330S or Caterpillar 330L |
| Mounting | Oscillating walking beam: 5' each side, total 10' |
| Total length | Epiroc & Caterpillar 330S: 181 in (4.60 m); Caterpillar 330L: 198 in (5.02 m) |
| Ground contact | Epiroc & Caterpillar 330S: 142 in (3.61 m); Caterpillar 330L: 159 in (4.04 m) |
| Take-up adjustment | Grease slack adjustment; spring recoil |
| Rollers | Epiroc & Caterpillar 330S: 7 lower / 2 upper; Caterpillar 330L: 8 lower / 2 upper |
| Location | Equally spaced between idler and sprocket |
| Roller bearings | Sealed for life |
| Track pads | Type: Triple bar grouser Width: 33.5 in (851 mm) Ground pressure Epiroc: 12.1 psi (83 kPa) Ground pressure Caterpillar 300S: 13.7 psi (94 kPa) Ground pressure Caterpillar 300L: 13.2 psi (91 kPa) |
| Drive | Hydrostatic closed loop through planetary speed reducer |
| Propel motors | Two - Hydraulic, axial piston, fixed displacement rating (each): 151 HP (112.6 kW) |
| Propel speed range | Epiroc: 0 - 1.1 mph (0 - 1.8 km/h), Caterpillar: 0 - 1.3 mph (0 - 2.1 km/h) |

Choose from three packages

RCS Lite | Basic

- RCS 5 touchscreen display and GUI with:
 - Real-time depth and pen rate feedback with histogram.
 - Rotation RPM and pressure (torque).
 - Pulldown/holdback.
 - Air pressure, water tank level.
 - On-screen machine inclinometers.
- Autolevel
- Safety features
 - Pipe-in-hole interlocks.
 - Stability interlock.
- One I/O module common with RCS 4/5 Pit Viper

RCS Lite | Connected

- Includes all features of RCS Lite | Basic, plus:**
- CCI module for data storage and transmission to wireless network
 - Rig events, drilling quality, drill status, etc.
 - Surface manager
 - Remote desktop viewer
 - Measure while drilling
 - Onboard storage
 - Operator ID and management
 - Delay code management and reporting
 - Optional user-level logins for RCS Lite drills

RCS Lite | NAV

- Includes all features of RCS Lite | Connected, plus:**
- GPS-ready with brackets (Option A) OR high-precision GPS installed (Option B)
 - Moving map display software
 - Geofence capability



Technical specifications

Tower, carousel and drill rod handling

| Tower | | |
|---|---|--|
| Tower construction | Fully welded four main member with open front ASTM A500; rectangular steel 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 actuation to center drill rod | |
| Rated capacity | | |
| Single pass depth <small>(clean hole with drill bit above the table)</small> | Standard 30 ft rod tower: 27.5 ft (8.4 m) Optional 35 ft rod tower: 32.5 ft (9.9 m) | |
| Maximum hole depth | Standard 30 ft rod tower: 175 ft (53.3 m) Optional 35 ft rod tower: 205 ft (62.5 m) | |
| Carousel (carousel internal to the tower with key-lock retention) | | |
| Rod length | 30 ft (9.1 m); 35 ft (10.7 m) optional | |
| Capacity | <ul style="list-style-type: none"> • Five pieces of 4-1/2 in, 5 in or 5-1/2 in rods (114 mm, 127 mm or 140 mm) • Four pieces of 5-1/2 in, 6-1/4 in or 7 in (140 mm, 159 mm or 178 mm) • Three pieces of 7 in or 7-5/8 in (178 mm or 194 mm) • Two pieces of 7-5/8 in (194 mm) | |
| Acuation | Two hydraulic cylinders | |
| Safety | <ul style="list-style-type: none"> • 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 30 ft or 35 ft | Thread | Suggested bit diameter |
| 4-1/2 in (114 mm) | 3-1/2 in API | 5-7/8 in – 6-3/4 in (150 mm – 171 mm) |
| 5 in (127 mm) | 3-1/2 in API or BECO | 6-3/4 in – 7-3/8 in (171 mm – 187 mm) |
| 5-1/2 in (140 mm) | 3-1/2 in BECO | 6-3/4 in – 7-7/8 in (171 mm – 200 mm) |
| 6-1/4 in (159 mm) | 4 in BECO | 7-7/8 in – 9 in (200 mm – 229 mm) |
| 7 in (178 mm) | 4-1/2 in BECO | 9 in – 9-7/8 in (229 mm – 251 mm) |
| 7-5/8 in (194 mm) | 5-1/4 in BECO | 9-7/8 in – 10-5/8 in (251 mm – 270 mm) |
| Rotary head | | |
| Speed range | Variable 0 – 161 RPM | |
| Torque | Variable 0 – 7,200 lbf-ft (0 – 9,762 Nm) | |
| Number of motors | Two | |
| Type of motor | One variable displacement axial piston and one fixed | |
| Reduction | 15:1 | |
| Travel length | 35 ft 7 in (10.9 m); 40 ft 6 in (12.3 m) optional | |
| Feed system | | |
| Pulldown capacity | Up to 60,000 lbf (267 kN) | |
| Pullback capacity | 0 – 22,000 lbf (0 – 98 kN) | |
| Weight on bit | Variable, 0 – 60,000 lb (0 – 27,216 kg) | |
| Mechanism type | Hydraulic cylinders with cable feed and chains | |
| Pulldown cable diameter | 1 in (25.4 mm) | |
| Pullback chain | 160 H | |
| Feed speed | Standard 30 ft rod tower: 146 ft/min (44.5 m/min) Optional 35 ft rod tower: 109 ft/min (33.2 m/min) | |
| Retract speed | Standard 30 ft rod tower: 205 ft/min (62.5 m/min) Optional 35 ft rod tower: 181 ft/min (55.2 m/min) | |

Technical specifications

Cab and controls

| Cab | |
|---|--|
| <ul style="list-style-type: none"> • Thermally insulated and pressurized • Adjustable suspension swivel seat with seat belt • Two hinged and lockable doors • Quiet (tested at 80 dBA) • Falling Object Protective Structure (FOPS) certified • Side-mounted air conditioning (easier to service as no roof access required) • Ergonomically designed wrap-around console • Windshield wiper on drilling and rear tramming window | |
| Controls (electric over hydraulic) | |
| Panels | <ul style="list-style-type: none"> • Tramming and jack controls • Ignition console and gauges • Engine diagnostic • Air regulation controls • Drill controls and gauges |
| Hydraulic system | |
| <ul style="list-style-type: none"> • Hydraulic pumps mounted on a single three-hole gearbox driven off the engine through a drive shaft • Hydraulic system main pumps work through diverter valves to control feed/rotation and propel • Two main pumps • One triple pump | |

Power package

| Airend | |
|--|--|
| Diesel only | 1,200 cfm @ 110 psi (34 m ³ /min @ 7.6 bar) 1,600 cfm @ 110 psi (45.3 m ³ /min @ 7.6 bar) 1,900 cfm @ 110 psi (53.8 m ³ /min @ 7.6 bar) 1,250 cfm @ 350 psi (35.4 m ³ /min @ 24 bar) 1,450 cfm @ 350 psi (41.1 m ³ /min @ 24 bar) |
| Electric only | 1,800 cfm @ 110 psi (51 m ³ /min @ 7.6 bar) 1,040 cfm @ 350 psi (29.7 m ³ /min @ 24 bar) |
| Diesel engine/Electric motor (1,800 rpm) | |
| Diesel engine – non Tier 4 | CAT C15 – 540 HP (403 kW) CAT C18 – 630 HP (470 kW) CAT C27 – 800 HP (597 kW) Cummins QSX15 – 530 HP or 600 HP (395 kW or 447 kW) Cummins QSK19 – 755 HP (563 kW) |
| Diesel engine – Tier 4 Final | CAT C15 – 540 HP (403 kW) CAT C18 – 755 HP (563 kW) CAT C27 – 800 HP (597 kW) Cummins QSX15 – 550 HP or 600 HP (410 kW or 447 kW) Cummins QSK19 – 755 HP (563 kW) |
| Electric motor* | WEG 6808 – 700 HP @ 50 Hz or 60 Hz (522 kW) |

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

Technical specifications

Dimensions and weight

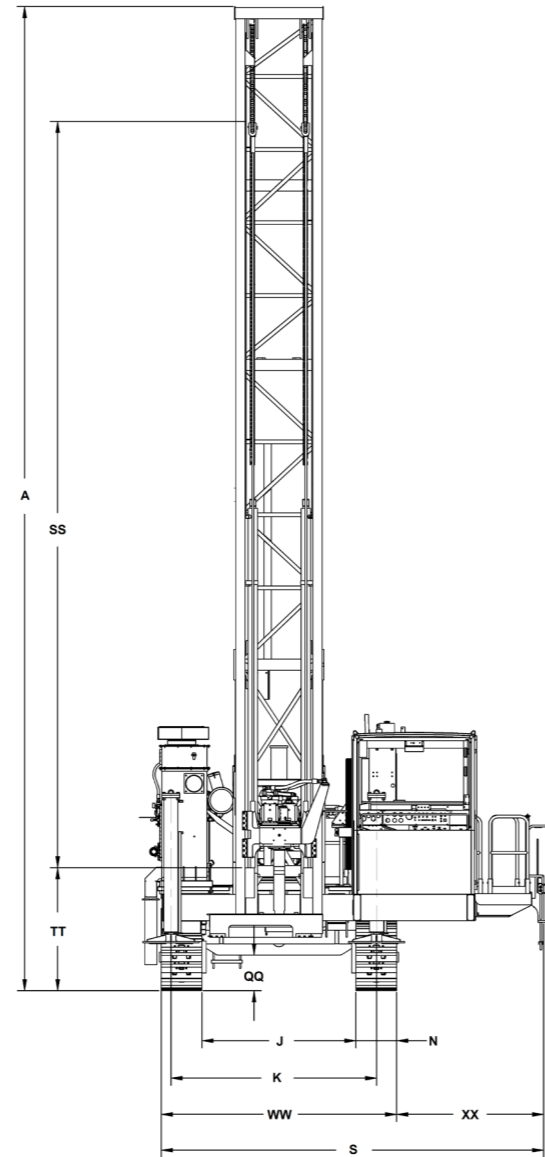
Operating weight

Estimated weight | 87,000 – 110,000 lb (39 – 50 tonnes)

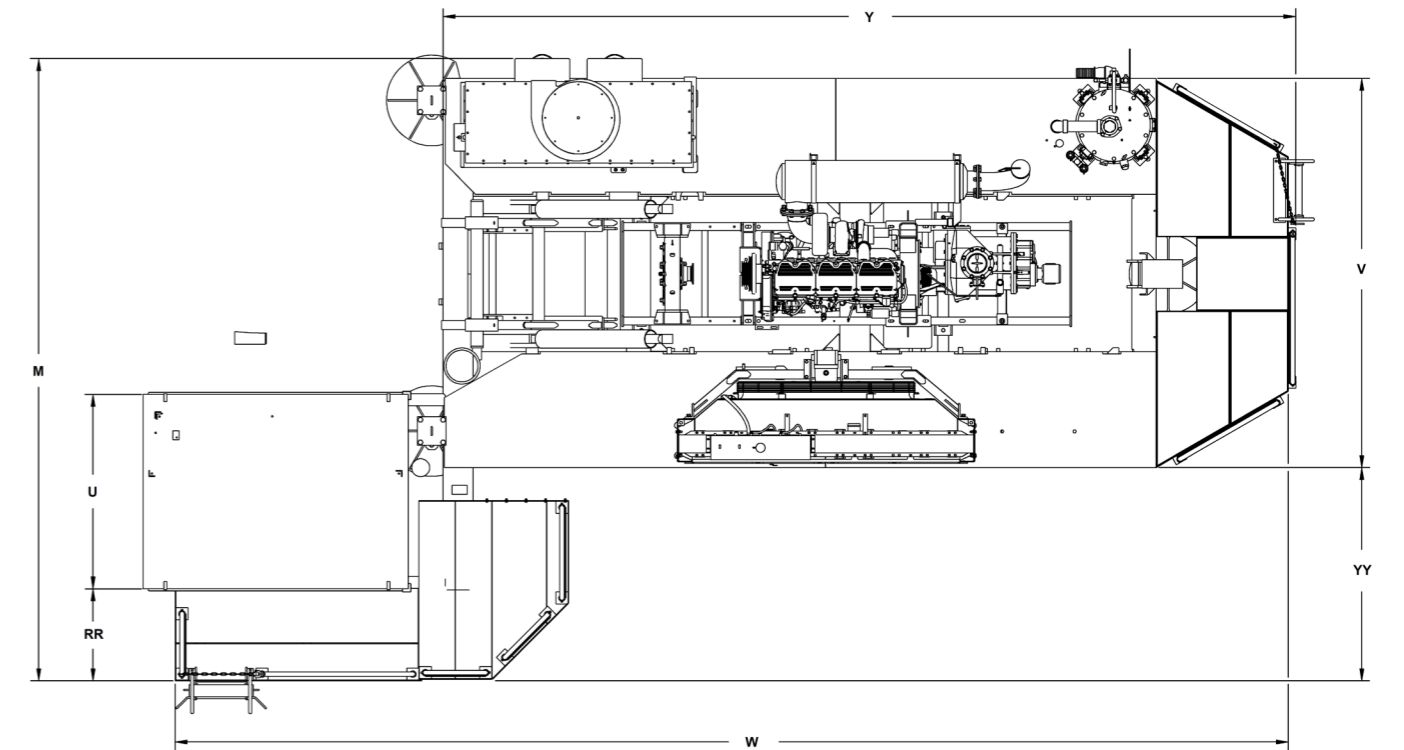
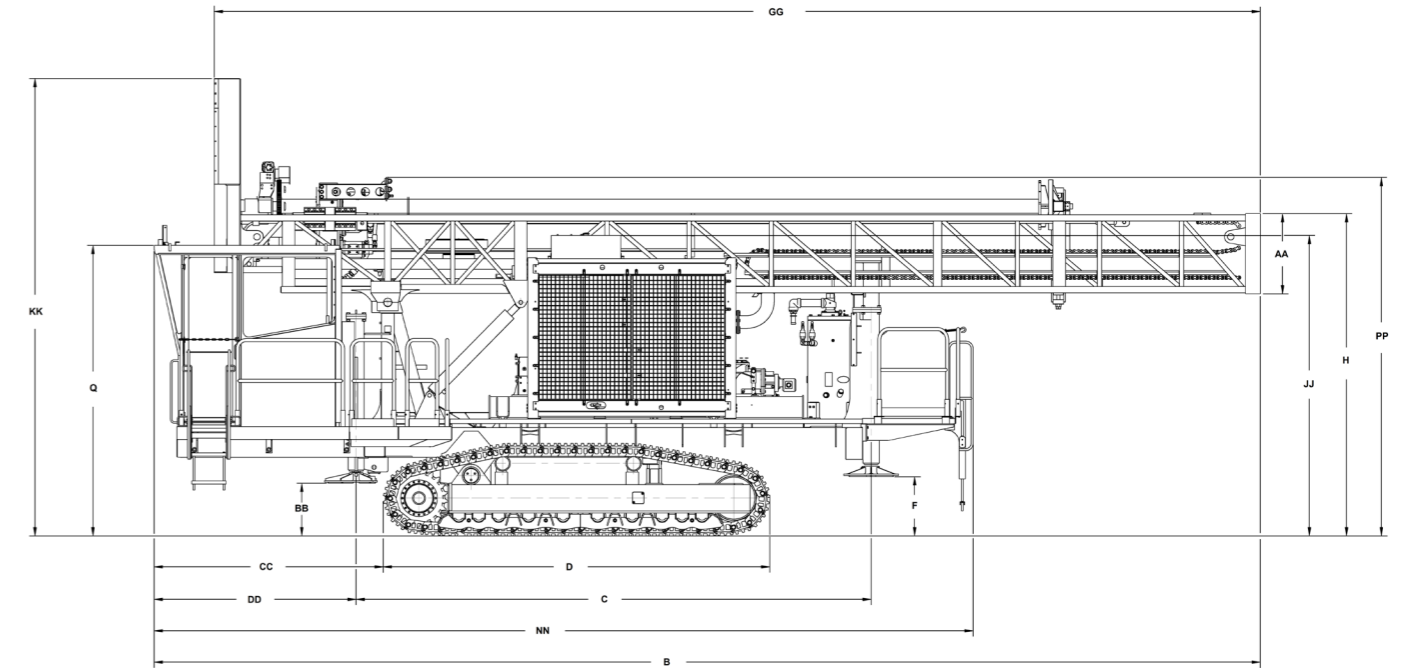
Operating dimensions

(Dimensions for DML LP with Caterpillar 330L undercarriage)

| | Description | Dimensions in (m) |
|----|--|-------------------|
| A | Height – tower up (30 ft rod tower) | 44' 1" (13.4) |
| | Height – tower up (35 ft rod tower) | 49' 2" (15.0) |
| B | Length – tower down (30 ft rod tower) | 43' 6" (13.3) |
| | Length – tower down (35 ft rod tower) | 48' 7" (14.8) |
| C | Length – jack center to jack center | 20' 3" (6.2) |
| D | Length – undercarriage | 16' 5" (5.01) |
| F | Height – jack to ground (non drill end) | 1' 5" (0.47) |
| H | Height – tower down (tower clearance) | 13' 1" (4.0) |
| J | Width – track inside to track inside | 6' 9" (2.06) |
| K | Width – jack center to jack center | 9' 8" (2.95) |
| M | Width – overall | 17' (5.17) |
| N | Width – track | 2' 9.5" (0.85) |
| Q | Height – ground to cab top | 11' 11" (3.62) |
| S | Width – drill end (no dust collector) | 16' 8" (5.1) |
| U | Width – cab | 5' 5" (1.63) |
| V | Width – decking (non drill end) | 12' 6" (3.8) |
| W | Length – decking | 31' 3" (9.52) |
| Y | Length – non drill end to dust collector end | 23' 7" (7.2) |
| AA | Width – tower (front view) | 3' 2" (0.97) |
| BB | Height – jack to ground (drill end) | 1' 6.5" (0.47) |
| CC | Length – cab to undercarriage edge | 8' 10.5" (2.7) |
| DD | Length – cab to front jack center (front view) | 7' 11" (2.4) |
| GG | Length – tower; front view (30 ft rod tower) | 41' 4" (12.6) |
| | Length – tower; front view (35 ft rod tower) | 46' 9" (14.3) |
| JJ | Height – ground to cooler | 12' 4" (3.74) |
| KK | Length – ground to dust curtain platform | 18' 5" (5.62) |
| NN | Length – non drill end to cab end | 32' 3" (9.82) |
| PP | Height – tower down (rod changer clearance) | 14' 6" (4.43) |
| QQ | Height – ground to oscillation yoke | 2' (0.6) |
| RR | Length – decking edge to cab edge | 2' 7" (0.79) |
| SS | Rotary head travel (30 ft rod tower) | 32' 7.6" (9.95) |
| | Rotary head travel (35 ft rod tower) | 37' 7.6" (11.47) |
| TT | Height – ground to bottom stop (30 ft rod tower) | 5' 10.4" (1.79) |
| | Height – ground to bottom stop (35 ft rod tower) | 5' 11.4" (1.81) |
| WW | Width – undercarriage assembly | 12' 4" (3.76) |
| XX | Width – decking (cab end to undercarriage edge) | 4' 8" (1.43) |
| YY | Width – decking (cab end to non drill end) | 4' 2" (1.25) |



Technical specifications



Optional equipment

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

- Angle drill package – 0-30 degrees
- Video camera system with three cameras and LCD screen
- Cold-weather options for drill operation in extremely cold ambient conditions (-45° C)
- Ground-level emergency shutdown
- Hands-free auxiliary wrench
- Tow hooks on non-drill end
- Epiroc dust collector
- Cab and tower strobe lights
- Automatic lube system
- Rotational tachometer
- Wiggins central service
- Hydraulic test station
- Water injection

**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.

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