Pit Viper 271 XC E

Electric blasthole drill rigs

Hole diameter: 171 mm to 270 mm (6-3/4" – 10-5/8")

Epiroc

Xtra capacity. Zero emissions.

Epiroc's electric-driven blasthole drill, the new Pit Viper 271 XC E, is designed for a cleaner, safer, and more efficient drilling experience.

The Pit Viper 271 XC E is capable of drilling single-pass holes up to 18 m (59 ft) with diameters up to 270 mm (10-5/8 in). Its 34-ton (85,000 lb.) bit load capacity ensures reliable and efficient operations.

The Pit Viper 271 XC E aligns with Epiroc's commitment to sustainability. With it's smaller carbon footprint and superior automation, this drill contributes to a cleaner and more sustainable operation.

Main benefits

Lower carbon footprint
Zero-emissions for a cleaner and more sustainable operation.

Zero fuel costs
Experience a drastic reduction in operational costs.

Superior automation
Packed with smart features that make your operation safer and more productive.

Designed for maximum productivity and value

+ Operator comfort

The Pit Viper 271 XC E features an insulated, pressurized cab with an air-ride operator seat — providing high suspension comfort with excellent visibility. The large cab is equipped with Rig Control System (RCS) controls, providing onboard automation capabilities as part of the standard drill package for added safety and productivity.

+ Ease of maintenance

The deck layout on the Pit Viper series offers easy access to all major service components. With no fuel consumption and fewer moving parts, less maintenance requirements result in a decrease in downtime and maintenance costs.

+ Electric-driven

The electric Pit Vipers deliver robust performance with zero emissions, creating a cleaner and safer work environment. The Pit Viper 271 XC E contributes to stable drilling operations with more predictable drilling outcomes, improved accuracy, and optimized recovery.

+ Enhanced safety

The Pit Viper 271 XC E is equipped with a number of features to help keep operators safe on the job. Features include a FOPS cab with double safety glass and remote hydraulic tower pinning, as well as safety interlocks through the RCS system and safety shutdowns for temperature, low level, and pressure.

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.

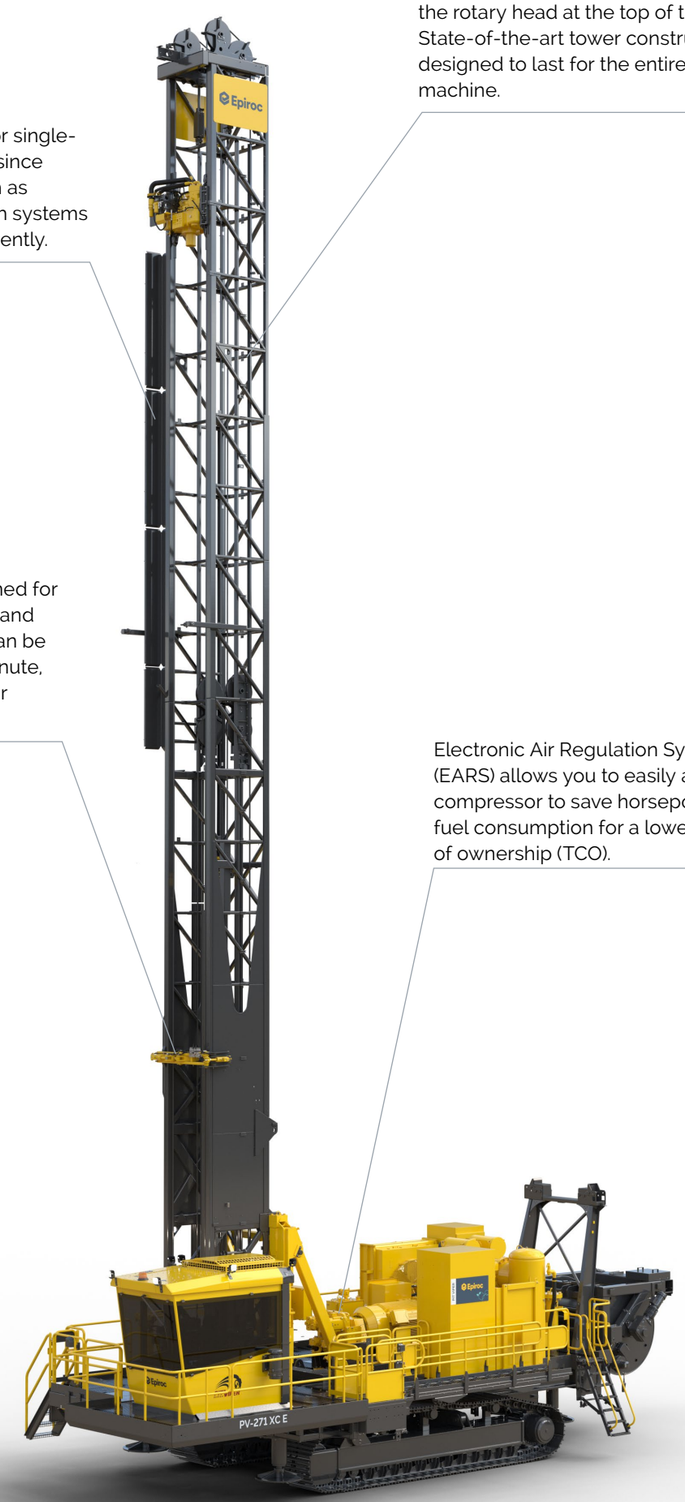
Preventive maintenance programs
Peace of mind so you can focus on your core business.

Maintenance costs for single-pass drills are lower, since high-wear items such as carousels and wrench systems are utilized less frequently.

Feed cylinders are designed for optimal high-speed feed and retract rates. The tower can be raised in less than one minute, reducing non-drill time for increased productivity.

Robust "live tower" design can be raised and lowered with a full carousel and the rotary head at the top of the tower. State-of-the-art tower construction is designed to last for the entire life of the machine.

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).



Rig Control System

Flexibility for the future

Epiroc's Rig Control System (RCS) is based on proven CAN-bus technology and comes standard on the Pit Viper 271 XC E. RCS provides a number of safety and interlock features, as well as a foundation to add new functionality/options later without a major rebuild of the machine. With RCS, you can run your Pit Viper 271 XC E with an operator on board using options such as Autodrill and Autolevel — or you can run with the operator off the drill, allowing one operator to run one or multiple units. You can even implement autonomous drilling with almost no human interaction with the drill.

Add-on features:

Autodrill
Executes fast, safe and efficient drilling processes in a consistent way.

Autolevel
Closes the gap between less experienced and expert operators.

Wireless remote tramming
Allows the operator to tram a Pit Viper from the bench within a 32.8 – 65.6 ft (10 – 20 m) distance.

Teleremote
Allows safe, productive and effective single- or multi-drill remote operations (control room and drill solutions sold separately).

Automatic Bit Changer
Enables hands-free bit changes so operators can effortlessly switch rotary tricone bits with a simple touch of a button, reducing downtime and boosting efficiency.

High-precision GPS hole navigation system
Imports drill plans to RCS and ensures that each blasthole is precisely positioned with accuracies of up to ±3.9 in (±10 cm), depending on installation and the number of satellites.

Office pack
Includes:

- **Common Communications Interface (CCI)**
  Allows data transfer to and from the RCS system.
- **Rig Remote Access (RRA)**
  Wirelessly sends files to and from the drill rigs.
- **Desktop Viewer**
  Allows remote access to the drill's operational screens.

Technical specifications

Substructure

Mainframe 162 lb/ft (241 kg/m)	
• Weld fabricated I-beam type using wide flange structural steel for both rails and crossbeams • 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	Four jacks
Calculated jack pad bearing pressure	Drill end: 68.9 psi (475 kPa) Non-drill end: 66.7 psi (460 kPa)
Position indication	"Jack up" indicator lights on console or RCS screen
Capacities	
Water tank	350 gal (1,325 L) or 750 gal (2,839 L)
Hydraulic tank	150 gal (568 L)
Undercarriage and propel system	
Make	Epiroc 3400 EXTENDED or Caterpillar 345XL
Mounting	Oscillating walking beam: 5° each side, total 10°
Total length	Epiroc 3400: 21 ft 4.6 in (6.52 m), Caterpillar 345XL: 21 ft 3 in (6.48 m)
Ground contact	Epiroc 3400: 18 ft 1 in (5.51 m), Caterpillar 345XL: 17 ft 11 in (5.46 m)
Take-up adjustment	Grease slack adjustment; spring recoil
Rollers	13 lower / 3 upper
Location	Equally spaced between idler and sprocket
Roller bearings	Sealed for life
Track pads	Type: Triple bar grouser — for increased grip and reduced ground pressure Width: 34.5 in (900 mm) Ground pressure: 13 psi (89.6 kPa)
Drive	Hydrostatic closed loop through speed reducer to drive sprockets
Propel motors	Two - Hydraulic, axial piston, rating (each): 170 HP (126.8 kW)
Propel speed range	Epiroc: 0 – 1.0 mph (0 – 1.6 km/h), Catepillar: 0 – 1.1 mph (0 – 1.8 km/h)

Tower, carousel and drill rod handling

Tower		
Tower construction	Four main member, open front ASTM A500 Grade B rectangular tubing; cold sawed and welded	
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	55 ft (16.8 m), optional 59 ft (18 m)	
	The 59 ft tower is slightly longer than the standard 55 ft tower and uses an Extended Feed System that allows a larger travel length of the rotary head.	
Maximum hole depth	Standard 55 ft tower: 105 ft (32 m), optional 59 ft tower: 109 ft (33.2 m)	
Carousel (carousel internal to the tower with key-lock retention)		
Rod length	25 ft (7.6 m)	
Capacity	Two pieces	
Actuation	Two hydraulic cylinders	
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 25 ft (7.6 m)	**Thread**	**Suggested bit diameter**
6-1/4 in (159 mm)	4 in BECO	6-3/4 in – 9 in (171 mm – 229 mm)
7 in (178 mm)	4-1/2 in BECO	9-7/8 in – 10-5/8 in (251 mm – 270 mm)
7-5/8 in (194 mm)	5-1/4 in BECO	9 in – 9-7/8 in (229 mm – 251 mm)
8 in (203 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 (270 mm)
Rotary head		
Speed range	Variable (0-180 RPM)	
Torque	(0-11,000 ft-lb)	
Number of motors	Two	
Type of motor	Variable displacement axial piston	
Reduction	(14.7:1)	
Horsepower	181 HP (135 kW) at 100% efficiency	
Travel length	66.48 ft (20.26 m)	
Feed system		
Pulldown capacity	Up to 80,000 lb (0-36,280kg)	
Pullback capacity	0 – 35,000 lbf (0 – 156 kN)	
Weight on bit	Variable, 0-85,000lb (0-38,555kg)	
Mechanism type	Two dual rod, dual piston hydraulic cylinders (patented design)	
Number of cables - diameter	Two Pulldown - 1.125 in (28.57mm), Two Pullback - 1 in (25.4mm)	
Number of sheaves - outside diameter	Six - 23.5 in (597mm), Four - 24.0 in (609.6mm)	
Automatic tensioning	Hydraulic motor driven jackscrews for pulldown cables; hydraulic cylinders for pullback cables (patented design)	
Feed speed	126.7 ft/min (38.4 m/min)	
Retract speed	158.1 ft/min (48.2 m/min)	

Cab and controls

Cab	
• Quiet, single piece design with no seams or leaks (tested @ less than 80 dBA) • Insulated, pressurized with heater and under cab mounted air conditioning • Falling Object Protective Structure (FOPS) certified • Ergonomically designed control system and excellent visibility (with unobstructed view to drill table)	
Controls (Standard Rig Control System – RCS)	
RCS Control	**Integrated control touchscreen** (penetration rate, rotation torque, rotation pressure, pulldown force, pulldown pressure, hole depth indicator, etc.) **Two joy sticks** (attached to the operator's seat) and push buttons on the operator panel controls (propel and leveling jack, pulldown feed control, holdback feed control) **Standard interlocks/features**
Hydraulic system	
• Four-hole pump drive gear box driven off the engine (optional electric motor) through a drive shaft • Two main pumps - drilling functions (drill feed and rotation) or tram functions (propel) • Dual tandem pumps for fan/auxiliary circuits	

Power package

Electronic Air Regulation System (EARS)

• Standard on the Pit Viper 271 XC E
• Deliver variable air volume control (within system capacity), while still maintaining constant air pressure
• Reduced wear on drill string components

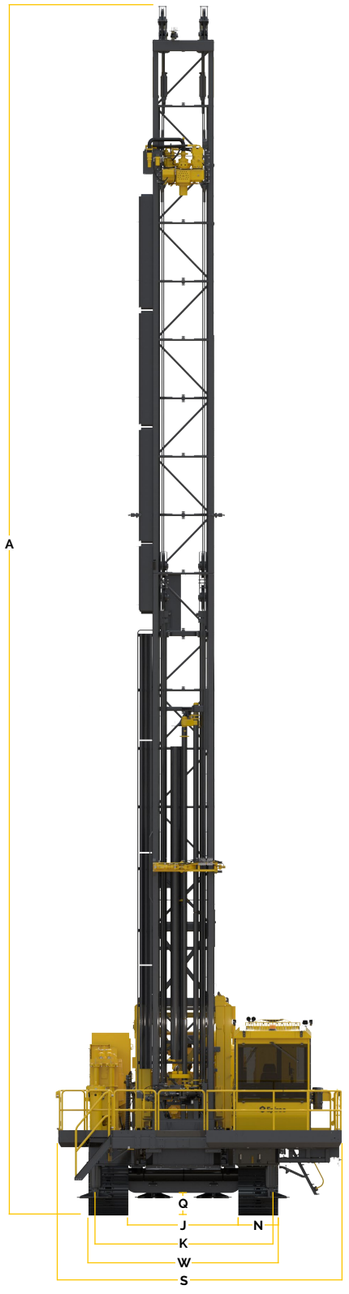
Electric motors	**50 hz or 60 hz**
	WEG - 1,000 HP (746 KW)
Airens	**50 hz or 60 hz**
Low Pressure	2600 CFM 110 PSI 73.6 m3/min 7.6 bar

Shipping dimensions and weight (standard machine)*

Tower	
Length	85 ft (25.91 m)
Width	7 ft 4 in (2.23 m)
Height	8 ft (2.44 m)
Gross weight	46,000 lb (20.9 tonnes)
Main frame (stripped)**	
Length	40 ft (12.19 m)
Width	17 ft (5.18 m)
Height	15 ft (4.57 m)
Gross weight	135,000 lb (61.2 tonnes)
Operating weight	
Estimated weight	170,000 – 210,000 lb (77 – 95 tonnes)

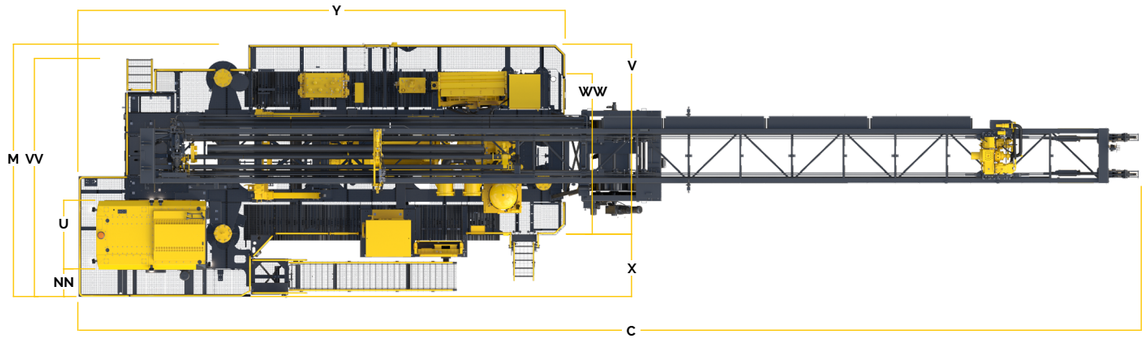
Operating dimensions (Dimensions for Pit Viper 271 XC E with Catepillar tracks; dimensions may vary by machine and options)

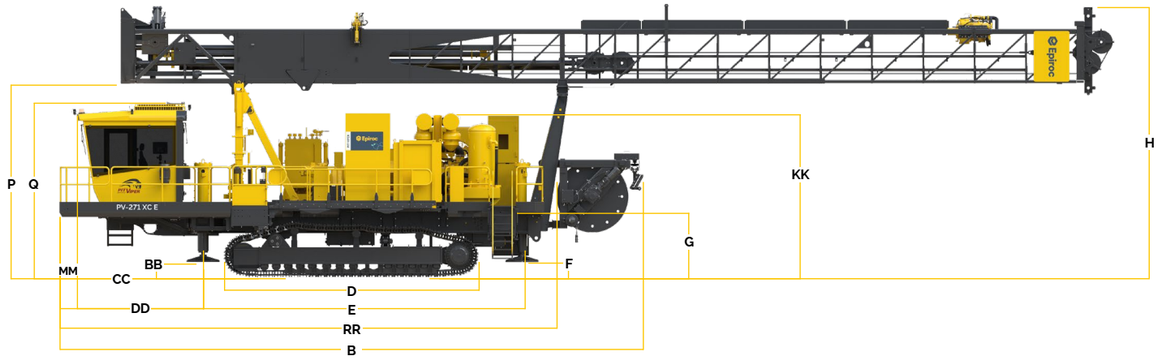
	Description	Dimensions ft (m)
A	Height – tower up, PV-271 (55 ft tower) Height – tower up, PV-271 (59 ft tower)	88' 8" (27.06) 90' 3" (27.52)
B	Length – tower up	53' 8" (16.39)
C	Length – tower down, PV-271 (55 ft tower) Length – tower down, PV-271 (59 ft tower)	88' (26.82) 89' 5" (27.27)
D	Length – undercarriage	21' 3" (6.49)
E	Length – jack center to jack center	26' 6" (7.92)
F	Height – jack to ground non drill end	1' 2" (0.36)
G	Height – decking to ground	4' 9" (1.49)
H	Height – tower down, non drill end	22' 4" (6.82)
J	Width – track inside to track inside	8' 1" (2.46)
K	Width – jack center to jack center	12' 9" (3.93)
M	Width – overall	24' 2" (7.37)
N	Width – track	2' 3" (0.70)
P	Height – tower off	16' (4.87)
Q	Height – ground to cab top	13' 8" (4.20)
S	Width – drill end, less dust collector	20' 6" (6.27)
U	Cab width	5' 7" (1.73)
V	Width – decking extended	15' 4.5" (4.70)
W	Width – undercarriage assembly	14' (4.24)
X	Width – decking cab end to undercarriage edge	4' 5" (1.37)
Y	Length – decking	40' 4" (12.31)
BB	Height – jack to ground drill end	1' 2" (0.36)
CC	Length – cabin to undercarriage edge, front view	12' 1" (3.68)
DD	Length – cabin to jack center, front view	10' 5" (3.20)
KK	Height – ground to engine exhaust	13' 8" (4.20)
MM	Length – decking edge to cab edge	1' 5" (0.45)
NN	Width – decking edge to cab edge top view	2' 3" (0.70)
QQ	Height – ground to oscillation yoke bottom	1' 6" (0.48)
RR	Length – decking cab end to water tank edge	42' 7" (13.0)
VV	Width – Decking edge to ladder	19' 7" (6.0)
WW	Width – decking, standard	13' 4.5" (4.20)



*Approximate shipping dimensions for crated PV-271 XC E with 55 ft tower (actual dimensions will vary based on rig configuration).

**Fall off will vary greatly by machine and options.





Optional equipment

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

- Wrap-around decking for 360° access around cab
- Cold-weather options for drill operation in extremely cold ambient conditions (-45° C)
- Hydraulic retractable stair
- Water injection system
- Angle drilling package
- Auxiliary crane
- Video camera
- Dust collector

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