

ATLAS COPCO BLASTHOLE DRILLS PIT VIPER 271

Rotary and DTH drilling
Hole diameter 6 ¾ in – 10 ⅝ in (171 – 270 mm)
Single pass depth 55 ft (16.8 m)

Atlas Copco



Built for performance

Designed for comfort

With a 75,000 lb (34 tonnes) bit load capacity, the Pit Viper 271 can add unsurpassed productivity to your mining operations. The heavy and durable Pit Viper 271 can drill a 55 ft (16.8 m) clean hole in a single pass. Single Pass drilling yields higher drilling efficiencies (up to 25% when drilling in soft material) by eliminating rod change time and allowing more time for drilling. In addition to increased efficiency eliminating rod changes also reduces the risk for operational errors.

Maintenance costs for single pass drills are lower since carousels and wrench systems (high wear items) are utilized less frequently. The PV-271 utilizes proven Atlas Copco systems and technology, it is not only reliable, but is also designed to be adaptable and easily fits into any drilling operation. It has an available option to be delivered with the RCS (computerized rig control system), which allows for incorporating optional functions like; wireless remote tramming, auto leveling, auto drilling, reporting functions and GPS navigation.

Atlas Copco Patented Feed System

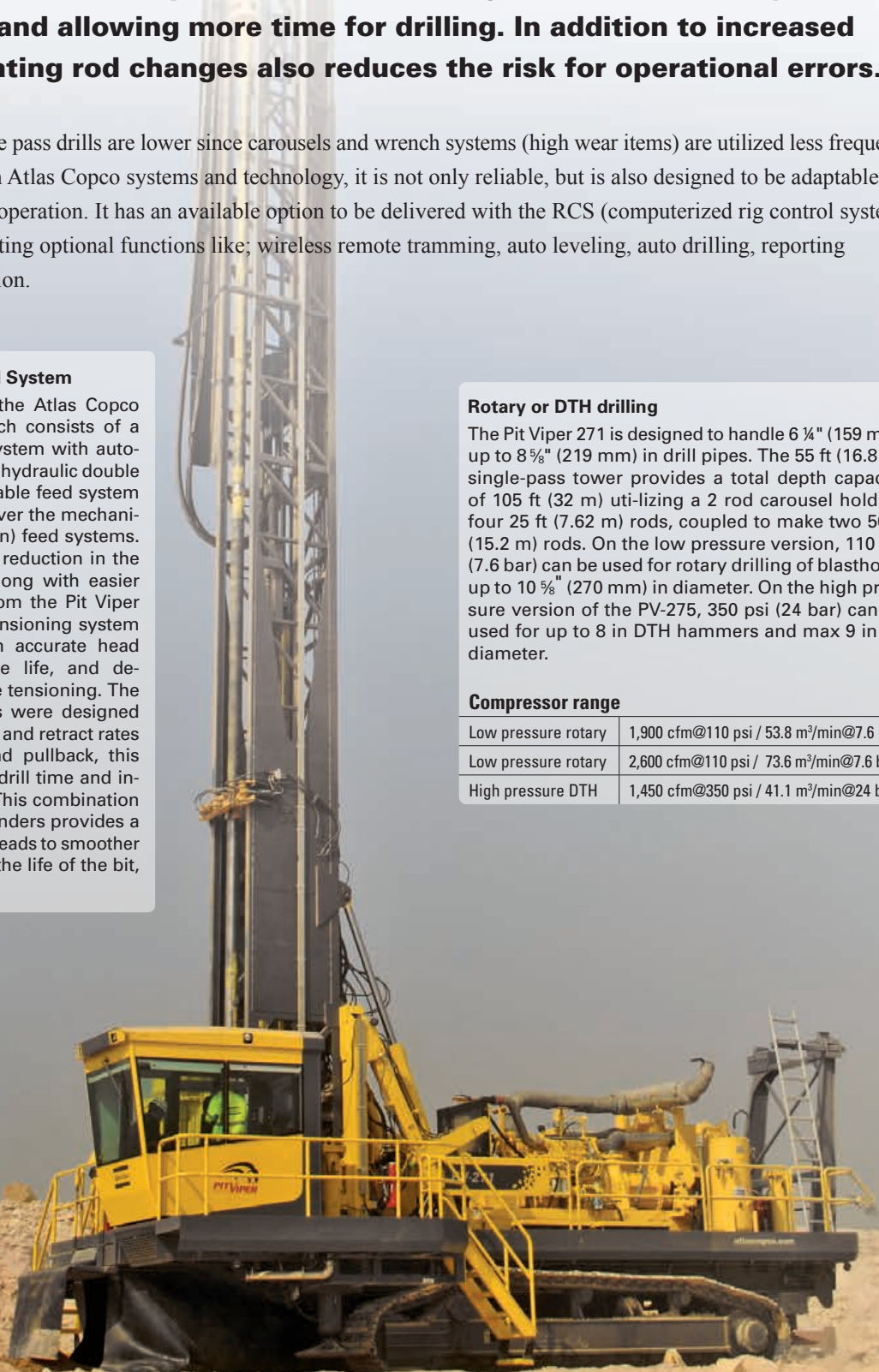
The Pit Viper 271 utilizes the Atlas Copco patented feed system which consists of a high strength cable feed system with automatic cable tensioning, and hydraulic double acting feed cylinders. The cable feed system provides two advantages over the mechanical (chain or rack and pinion) feed systems. It allows an overall weight reduction in the tower and feed system, along with easier wear detection. Derived from the Pit Viper 351, the automatic cable tensioning system on the PV-271 ensures an accurate head alignment, improved cable life, and decreased downtime for cable tensioning. The Atlas Copco feed cylinders were designed for optimal high speed feed and retract rates for the rated pulldown and pullback, this consequently reduces non-drill time and increases drilling efficiency. This combination of cables and hydraulic cylinders provides a more even feed force which leads to smoother drilling, and helps increase the life of the bit, drill string and feed system.

Rotary or DTH drilling

The Pit Viper 271 is designed to handle 6 ¼" (159 mm) up to 8 ⅝" (219 mm) in drill pipes. The 55 ft (16.8 m) single-pass tower provides a total depth capacity of 105 ft (32 m) utilizing a 2 rod carousel holding four 25 ft (7.62 m) rods, coupled to make two 50 ft (15.2 m) rods. On the low pressure version, 110 psi (7.6 bar) can be used for rotary drilling of blastholes up to 10 ⅝" (270 mm) in diameter. On the high pressure version of the PV-275, 350 psi (24 bar) can be used for up to 8 in DTH hammers and max 9 in bit diameter.

Compressor range

Low pressure rotary	1,900 cfm@110 psi / 53.8 m ³ /min@7.6 bar
Low pressure rotary	2,600 cfm@110 psi / 73.6 m ³ /min@7.6 bar
High pressure DTH	1,450 cfm@350 psi / 41.1 m ³ /min@24 bar



Operator comfort

The PV-271 series cab is engineered to keep the operator safe and comfortable. Designed and tested to the same Falling Object Protective Structure (FOPS) standard as dozers, the cab protects operators against falling objects. Large windows ensure clear visibility while drilling and tramping from hole to hole. The ergonomic PV-271 series console is designed to ensure operator comfort. The controls are logically separated into drilling and non-drilling functions, making the PV-271 easy to operate. The drilling functions are angled to allow for easy visibility of the drill table, while large cab windows ensure that the operator has clear visibility, further enhancing the safety of the machine.



Excellent serviceability

The Pit Viper 271 is designed to be a maintenance friendly machine. The structure is laid out to allow for safe, easy movement and good access to service points. The rig is equipped with central service fill which provides a central location and ease of access to fill and evacuate fluids. The hydraulic system utilizes a leak-free, clean specification with a single gear box and a three pump configuration. The valve stand is located above the deck and all filter elements are easy to reach. Long component life, single pass operation and automatic cable tensioning contribute to reducing the time spent on maintenance.



Sturdy and powerful

To ensure long frame life without rebuilds, the design and testing process followed the concept used for the PV-351. The I-beam used is 24" (610 mm) thick with a cross section of 162 lb./ft. (141 kg/m). The structure has a low center of gravity providing stability and reduced drilling vibrations. The power system setup for the PV-271 includes a choice of matched engines and compressors for rotary or down-the-hole drilling operations. The power pack consists of a diesel engine (or an electric motor) directly coupled to an air compressor on one end, and a three-hole hydraulic pump drive gear-box on the other end. This complete power pack assembly is mounted on its own sub base, which is then mounted to the rig main frame. This mounting arrangement isolates torsional vibrations from the mainframe to the power package, as well as vibrations from the power package to the mainframe.



Standard equipment

- Insulated, pressurized, air conditioned cab with tinted glass and suspension operator seat
- Caterpillar 345XL undercarriage with hydraulic track tensioners
- Hydraulic cylinders driven cable feed system
- Hydraulic motor driven rotary head with spline lubrication, maximum torque 8,700 lbf-ft (11.8 kNm); speed range 0 - 150 rpm.
- Rotary head tachometer on operator console
- Remote hydraulic tower pinning
- Two-rod carousel for 6 1/4" (159 mm) to 8-5/8" (219 mm) drill rods
- "No-bump" rod changer
- Hydraulically powered breakout wrench (fork chuck)
- Hands Free auxiliary hydraulic chain wrench
- 8,000 lb (3,629 kg) capacity auxiliary hoist
- Hydraulically retractable dust curtains
- Cooling package
- Separate air intake filters for engine and air compressor
- Wide flange structural steel beam frame with oscillation yoke mounting
- Hydraulic Test Station
- 12-light night lighting package-70 watt halogen
- Full deck service catwalks and railings
- Two 48" (1.2 m) and one 60" (1.52 m)' stroke leveling jacks

A selection of features on Pit Viper 271 Series

For a more comprehensive options list, please contact your local Atlas Copco Customer Center.



Automated drilling

Optional functions can be added to the RCS system, like auto leveling and auto deleveling, GPS hole navigation, rig remote access with communication, wireless remote tramping, measure while drilling, teleremote operation, and autodrilling.

Angle drilling package

The optional Atlas Copco patented angle drilling package allows the tower to be positioned up to a maximum of 20 degrees (specified from the vertical, in increments of 5 degrees). All controls for positioning are located at the operator's control console inside the cab. This system changes the pivot point on the tower to drill deck level.

Four jack system

Stability is important for the drilling operations. As an upgrade option to the standard "tripod jack arrangement" the PV-271 can be supplied with a four jack configuration, where the non-drill end jacks are tied together acting as one outrigger.

Electronic air regulation

An option available on the PV-271 is the Electronic Air Regulation Control System (EARS). This system is designed to deliver variable air volume control (within system capacity), while still maintaining constant air pressure. This allows for a reduction in power needed, and savings in fuel consumption.

Technical data PV-271

Drilling Method	Rotary and DTH - Single pass	
Hole Diameter	6 3/4 in - 10 5/8 in	171 mm - 270 mm
Hydraulic Pulldown	70,000 lbf	311 kNm
Weight on bit	75,000 lb	34,000 kg
Hydraulic Pullback	35,000 lbf	156 kN
Single pass depth	55 ft	16.8 m
Maximum hole depth	105 ft	32 m
Feed speed	127 ft/min	0.6 m/s
Rotary head, torque	8,700 lbf•ft	11.8 kNm
Estimated weight	185,000 lb	84 tonnes

Dimensions tower up

Length	41 ft 3 in	12.6 m
Height	87 ft	26.5 m
Width	18 ft 4 in	5.6 m

Dimensions tower down

Length	83 ft 7 in	25.5 m
Height	22 ft 1 in	6.7 m

Engine (Tier II)

Caterpillar	C27	800HP / 597 kW@1800RPM (LP 1900)
Cummins	QSK19	755HP / 563 kW@1800RPM (LP 1900)
Caterpillar	C32	950HP / 708 kW@1800RPM (LP 2600)
Caterpillar	C27	800HP / 597 kW@2100RPM (HP 1450)
Cummins	QSK19	755HP / 563 kW@2100RPM (HP 1450)
Weg motor	6808	700HP / 521 kW@ 50 or 60Hz
Weg motor	6811	900HP / 671 kW@ 50 or 60Hz

Drill pipe specification

Drill pipe diameter	Bit diameters	Thread
6 1/4" (159 mm)	6 3/4" - 9"	4" BECO
7" (178 mm)	9" - 9 7/8"	4 1/2" BECO
7 5/8" (194 mm)	9 7/8" - 10 5/8"	5 1/4" BECO
8" (203 mm)	9 7/8" - 10 5/8"	5 1/4" BECO
8 5/8" (219 mm)	10 5/8"	6" BECO

High pressure DTH drilling

Up to 8" DTH hammer and max. 9" bit diameter

Sustainable Productivity

We stand by our responsibilities towards our customers, towards the environment and the people around us. We make performance stand the test of time. This is what we call – Sustainable Productivity

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