

ATLAS COPCO BLASTHOLE DRILLS DM45-SERIES

Rotary drilling – Multi pass
Hole diameter 5 7/8 in – 9 in (149 – 229 mm)
Maximum hole depth 175 ft (53.3 m)

Atlas Copco



Heavy duty concept

Designed for productivity

The Atlas Copco DM45 is a crawler mounted, hydraulic tophead drive, multi pass drilling rig. Featuring a 30 ft (9.1m) drill pipe change and a 5 rod carousel it is specifically designed for production blasthole drilling to depths of 175 ft (53.3 m).

The rugged and highly productive DM45 is used for blasthole drilling at all kinds of mining operations around the world. Feed pressure generates a bit load force of up to 45,000 lbf (200 kN) and utilizes a diesel engine to drive the air compressor and hydraulic system. Several low and high pressure compressor alternatives are available for the DM45 series, making it suitable for a variety of rotary and DTH drilling applications.

Tower and pipe handling

Raising the tower with a full complement of drill pipes in the carousel and under the rotary head can be accomplished in less than one minute. The carousel-type drill pipe changer is part of the tower assembly and located on the outside of the tower frame. Tower pinning and pipe changing is performed remotely from the operator's cab. Breaking pipe joint is done by a hydraulic positioned sliding fork wrench with limited impact, that minimizes shock loads on the tower, carousel, rotary head and feed components. A hydraulic motor rotates the carousel to index the rotary head for changing. Standard rotation on the DM45 is supplied by a rotary tophead. Two hydraulic motors power the rotation of the head. A replaceable 29" spindle adapter between the spindle and the drill pipe is furnished as standard equipment, along with replaceable head guides.

Rotary or DTH drilling

The DM45 is designed to handle 4 ½ in. up to 7 in. drill pipes. For the low pressure version, DM45 LP, 110 psi (7.6 bar) can be used for rotary drilling of blastholes up to 9 in. (229 mm) in diameter. On the high pressure version, DM45 HP, 350 psi (24 bar) can be used for up to 6 ½ in. DTH hammers and max 8 in. bit diameter. The DM45 in-line drive train, consists of a diesel engine directly coupled to a compressor on one end and a hydraulic pump drive on the other end. This configuration maximizes mechanical efficiency and the "floating" sub base isolates the components from shock loads, and maintains the alignment. The "on-off" regulation system of the high pressure compressor can remove load during non-drilling operations. This is extending compressor life, saving energy and providing easier startup.

Compressor

Low pressure rotary	900 cfm @ 110 psi / 25.4 m ³ /min @ 7.6 bar
Low pressure rotary	1,050 cfm @ 110 psi / 29.7 m ³ /min @ 7.6 bar
Low pressure rotary	1,200 cfm @ 110 psi / 34.0 m ³ /min @ 7.6 bar
High pressure, DTH	900 cfm @ 350 psi / 25.4 m ³ /min @ 24 bar
High pressure, DTH	1,070 cfm @ 350 psi / 30.3 m ³ /min @ 24 bar



Operator comfort

All operational functions can be controlled from the drillers console in the cab. The operator has an excellent visibility with an unobstructed view of the drill table. The wrap-around drilling console places the heavy-duty electric over hydraulic controllers within easy reach. The cab is thermally insulated, pressurized, heated, ventilated and equipped with tinted safety glass. It has an ergonomic seat with seat belt, and can be entered through two hinged and lockable doors. The FOPS certified cab has an integrated air conditioning system and a sound abatement tested at 80 dBA. A six-light halogen night lighting system is provided as standard for operator visibility under low light operating conditions.



Efficient feed system

The DM45 closed-loop hydrostatic feed system is powered by two hydraulic feed cylinders that raise and lower the rotary head smoothly and positively by way of cable for pulldown and heavy-duty feed chain for pullback. A gauge on the operator's console indicates feed pressure. Single-lever operation of feed speed and direction gives the operator greater ease of operation. This simplified control also provides faster feed and retract speeds. The system operates more efficiently than other designs due to lower flows and the resulting reduced pressure drop. This enables the pumps to operate in the more efficient portion of their performance curves.



A mobile and stable platform

The DM45 utilizes an excavator-type undercarriage, built to Atlas Copco specifications. Tracks are driven by a planetary gear system and two hydraulic motors rated at 111 hp (83 kW) each. The Atlas Copco designed DM45 main frame is a weld fabrication of rectangular tubing, verified by dynamic strain gauging. A "walking beam" oscillation yoke allows the rig to propel over uneven ground while reducing torsional stresses on the main frame. Both tracks are individually controlled, and act as an independent unit. The tracks are hydraulically adjustable with a spring recoil system and equipped with replaceable triple bar grouser pads.



Standard Equipment

- Insulated cab with FOPS 80 dB(A)
- Cab pressurizer / ventilator / heater
- Nine quartz halogen night lighting package
- Dust hood with curtains and hydraulically raising dust flap
- Auxiliary hoist for drill pipe and accessory handling
- Heavy-duty engine silencer/muffler
- Separate air intake filters with quick release dust drop covers for engine and air compressor
- Gear indexing carousel for five 4½ in. x 30 ft. pipe
- Sliding hydraulic fork wrench for drill pipe breakout
- Hydraulically powered auxiliary chain wrench
- 350-gallon (1,324 L) fuel tank
- 4SV-2-10 two motor high speed rotary head with spline lubrication, 0 to 160 RPM, and a maximum torque 7,200 lbf•ft
- 30 foot drill pipe change
- No-bump rod changer
- Ether injection
- Jack-up indicator lights
- Three 48 in. (1,219 mm) stroke leveling jacks
- 23.6 in. (600 mm) wide triple bar grousers
- Reinforced rectangular steel track frame with oscillation yoke
- Walkways and railings
- Remote tower pinning
- Back-up alarm

A selection of options for the DM45-series

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



Angle drilling package

Two optional angle drilling packages are available. The 20 degree and the 30 degree angle drill package for positioning the tower from vertical in 5 degree increments. Both packages include a drill rod support, and an angle drill tie bar.

Dust control

Two optional sizes of dry dust collectors are available for the DM45. The dust collector is controlled by a hydraulic vane motor and come with dust hood curtains that are rectangular split, and have a hydraulically retractable front curtain. Another option is the Water Injection System.

Fast service system

Fast Service system with ground level, quick connect fittings for fill and evacuation of fuel, hydraulic oil, engine coolant, receiver tank oil, and crankcase oil is an available option for the DM45. Another option for fuel only quick fill is also available.

EARS

The optional Electronic Air Regulation Control System (EARS) is designed to deliver variable air volume control while still maintaining constant air pressure. This allows for a reduction in power needed, and savings in fuel consumption.

Technical data DM45

Drilling Method	Rotary or DTH Multi pass	
Hole Diameter	5 7/8 in – 9 in	149 mm – 229 mm
Hydraulic Pulldown	45,000 lbf	200 kN
Weight on bit	45,000 lb	20,400 kg
Hydraulic Pullback	22,000 lbf	98 kN
Single pass depth	27 ft 5 in	8.5 m
Maximum hole depth	175 ft	53.3 m
Feed speed	146 ft/min	0.7 m/s
Rotary head, torque	7,200 lbf-ft	9,76 kNm
Estimated weight	77,000 lb 95,000 lb	35 tonnes 41 tonnes

Dimensions tower up

Length	31 ft 10 in	9.7 m
Height	43 ft 7 in	13.3 m
Width	17 ft 2 in	5.23 m

Dimensions tower down

Length	43 ft 7 in	13.3 m
Height	18 ft	5.5 m

Engine (Tier 3 and Tier 4 Final)

Caterpillar	C15	440HP / 328 kW@1800RPM (LP 900)
Cummins	QSX15	425HP / 317 kW@1800RPM (LP 900)
Caterpillar	C15	475HP / 354 kW@1800RPM (LP 1050)
Cummins	QSX15	475HP / 354 kW@1800RPM (LP 1050)
Caterpillar	C15	540HP / 403 kW@1800RPM (LP 1200)
Cummins	QSX15	530HP / 395 kW@1800RPM (LP 1200)
Caterpillar	C15	540HP / 403 kW@1800RPM (HP 900)
Cummins	QSX15	530HP / 395 kW@1800RPM (HP 900)
Caterpillar	C18	630HP / 470 kW@1800RPM (HP 1070)
Cummins	QSX15	600HP / 447 kW@1800RPM (HP 1070)

Drill Pipe specification (Standard 30 ft tower, 9.1 m long pipes)

Drill pipe diameter	Suggested bit diameters	Thread
4 1/2" (114 mm)	5 7/8" – 6 3/4"	3 1/2" API
5" (127 mm)	16 3/4" – 7 3/8"	3 1/2" API or BECO
5 1/2" (140 mm)	6 3/4" – 7 7/8"	3 1/2" BECO
6 1/4" (159 mm)	7 7/8" – 9"	4" BECO
7" (178 mm)	9"	4 1/2" BECO

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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