## Atlas Copco Blasthole Drills

# DML-SP series

## Rotary and DTH drilling

Hole diameter 6 - 9 7/8 in (152 - 251 mm)
Single pass depth 60 ft (18.3 m)

*Sustainable Productivity*

Atlas Copco

# Heavy duty concept
## with high single pass drilling capacity

**The Atlas Copco DML-SP is a crawler mounted, hydraulic table drive, rotary drilling rig specifically designed for production blasthole drilling to depths up to 60 ft (18.3 m) in a single pass without a pipe change. Tower options are available for both a 50 ft and a 60 ft clean hole tower and angle drilling is an option.**

The DML-SP utilizes a diesel engine to drive the air compressor and hydraulic system. Operation of the drill is performed using electric over hydraulic controllers from an ergonomically designed operator cab. Feed pressure generates a weight on bit force of up to 54,000 lbf. (240 kN). Since the launch of the DML-SP in the early 1980's, this robust drilling rig has operated in many demanding mining operations around the globe. The rugged and reliable DML-SP has a track record of long service life as well as efficient operation. The DML-SP is an ideal solution for soft, non-abrasive applications.

**Tower and kelly bar handling**

Raising or lowering the tower is done by two hydraulic cylinders and can be accomplished in less than one minute. Tower pinning is performed remotely from within the operator's cab. Rotation on the DML-SP is supplied by a hydraulic motor driven rotary table assembly. A single, variable displacement, hydraulic motor drives the kelly bar through an initial planetary reduction, supplying input to the spur gear reduction. The rotation pressure is shown by a gauge on the control panel, enabling the operator to monitor bit operation and adjust the feed pressure accordingly. The rotation speed is shown on the standard tachometer mounted in the cab.

**Rotary or DTH drilling**

The DML-SP is designed to handle 4 ¾ in (121 mm) through 7 in (17 mm) kelly bars. The 110 psi (7.6 bar) low pressure version of the DML-SP can be used for rotary drilling of blastholes up to 9 ⅞ in. (251 mm) diameter, while the 350 psi (24 bar) high pressure version can be used for up to 7 in (178 mm) holes with a DTH hammer and a 8 ⅞ in (225 mm) bit diameter. The DML-SP 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. This configuration maximizes mechanical efficiency. The "on-off" regulation system of the high pressure compressor can remove load during non-drilling operations, which extends the compressor life, saves energy, and provides for an easier startup.

**Compressor range**

| | |
|---|---|
| Low pressure rotary | 1,200 cfm @ 110 psi / 34 m3/min @ 7.6 bar |
| Low pressure rotary | 1,600 cfm @ 110 psi / 45 m3/min @ 7.6 bar |
| Low pressure rotary | 1,900 cfm @ 110 psi / 53.8 m3/min @ 7.6 bar |
| High pressure, DTH | 1,250 cfm @ 350 psi / 35.4 m3/min @ 24 bar |

## Operator comfort

All operational functions can be controlled from the drillers console in the cab. The operator has 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, equipped with double safety glass, and has an ergonomic seat with seat belt. The FOPS certified cab, which can be entered through two hinged and lockable doors, and has an integrated air conditioning system and a sound abatement tested at 80 dBA.


## The single-pass advantage

Drilling a hole in one pass has many advantages and the most obvious is the elimination of rod changing time. The non-productive time for the extra cycle of adding and removing rods can be around 1-2 minutes. When drilling in very soft coal overburden formations, a single pass drill would yield an overall productivity gain of over 25 percent. Other benefits are that operators do not have to worry about the rod changing operation, breaking tight drill tool joints, or changing a bit in the middle of a hole.

## A mobile and stable platform

The DML-SP utilizes an excavator-type undercarriage, built to Atlas Copco specifications. Tracks are driven by a planetary gear system and two hydraulic motors rated at 175 hp (130 kW) each. 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. The Atlas Copco designed 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.

## Standard Equipment

- Insulated cab with FOPS
- Cab pressurizer / heater
- Nine quartz halogen night lighting package
- Rectangular Dust hood with skirting and hydraulically retractable front curtain
- Cooler package rated up to 125°F (52°C) ambient temperature
- Heavy-duty engine silencer/muffler
- Separate air intake filters with quick release dust drop covers for engine and air compressor
- Hydraulically powered auxiliary chain wrench
- 350-gallon (1,324 L) fuel tank
- Single motor rotary table with variable hydraulic motor 0 to 100 RPM, and a maximum torque of 7,500 lbf•ft
- Hydrostatic motor feed system
- Three 48 in. (121.9 cm) stroke leveling jacks
- 31.5 in. (800 mm) wide triple bar grousers
- Reinforced rectangular steel track frame with oscillation yoke mounting
- Walkways and deck railings
- Full depth kelly bar
- Kelly RPM tachometer on console
- Remote tower pinning
- Back-up Alarm
- Ether injection
- Jack-up indicator lights

# A selection of options on the DML-SP

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

### Angle drilling package

The optional angle drill packages, 0 - 15° or 0 - 20°, allow the tower to be positioned from the vertical position, in 5 degree increments. The package includes a drill rod support and an angle drill tie bar. All controls are located at the operator's control console inside the cab.

### Dust control

There are four different dust control options for the DML-SP series; three dust collector sizes and a water injection system. Each includes rectangular split dust curtains and a hydraulically retractable front curtain.

### Fast service system

The DML-SP has an optional fast service system with ground level, quick connect fittings for fill and evacuation of fuel, hydraulic oil, engine coolant, receiver and crankcase oil.

### 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 savings in power and fuel consumption.

## Technical data DML-SP

| Technical data | | |
|---|---|---|
| Drilling Method | Rotary and DTH - Single pass | |
| Hole Diameter | 6 in - 9 7/8 in | 152 mm - 251 mm |
| Hydraulic Pulldown | 54,000 lbf | 240 kN |
| Weight on bit | 54,000 lb | 24,500 kg |
| Hydraulic Pullback | 54,000 lbf | 240 kN |
| Single pass depth | 50 ft or 60 ft | 15.2 m or 18.3 m |
| Maximum hole depth | 50 ft or 60 ft | 15.2 m or 18.3 m |
| Feed speed | 100 ft/min | 60 m/min |
| Rotary table, torque | 7,500 lbf•ft | 10.2 kNm |
| Estimated weight | 90,000 lb - 100,000 lb | 41 tonnes - 45 tonnes |
| **Dimensions tower up** | | |
| Length (50 ft tower) | 37 ft 6 in | 11.4 m |
| Length (60 ft tower) | 37 ft 6 in | 11.4 m |
| Height (50 ft tower) | 71 ft 7 in | 21.8 m |
| Height (60 ft tower) | 82 ft 7 in | 25.2 m |
| Width | 13 ft 10 in | 4.1 m |
| **Dimensions tower down** | | |
| Length (50 ft tower) | 68 ft | 20.7 m |
| Length (60 ft tower) | 79 ft | 24.1m |
| Height (50 ft tower) | 19 ft 7 in | 6.0 m |
| Height (60 ft tower) | 19 ft 7 in | 6.0 m |

| Engine ([2]Tier II, [3]Tier III) | | |
|---|---|---|
| **Caterpillar** | C15[3] | 525HP@1800RPM (LP 1200) |
| **Cummins** | QSX15[3] | 525HP@1800RPM (LP 1200) |
| **Caterpillar** | C18[3] | 630HP@1800RPM (LP 1600) |
| **Cummins** | QSX15[3] | 600HP@1800RPM (LP 1600) |
| **Caterpillar** | C27[2] | 800HP@1800RPM (LP 1900) |
| **Cummins** | QSK19[2] | 755HP@1800RPM (LP 1900) |
| **Caterpillar** | C27[2] | 800HP@1800RPM (HP 1250) |
| **Cummins** | QSK19C[2] | 760HP@2100RPM (HP 1450) |

| **Kelly specifications, standard 50 ft tower, 15.2 m hole depth** | | |
|---|---|---|
| **Kelly diameter** | **Kelly length** | **Thread** |
| 4 3/4 in. (121 mm) | 58 ft. (17.7 m) | 3 1/2 in. Reg. |
| 6 1/4 in. (159 mm) | 58 ft. (17.7 m) | 4 1/2 in. Reg. |
| 7 in. (178 mm) | 58 ft. (17.7 m) | 5 1/2 in. Reg. |

| **Kelly specifications, optional 60 ft tower, 18.3 m hole depth** | | |
|---|---|---|
| **Kelly diameter** | **Kelly length** | **Thread** |
| 4 3/4 in. (121 mm) | 68 ft. (20.7 m) | 3 1/2 in. Reg. |
| 6 1/4 in. (159 mm) | 68 ft. (20.7 m) | 4 1/4 in. Reg. |
| 7 in. (178 mm) | 68 ft. (20.7 m) | 5 1/2 in. Reg. |

| **Suggested bit diameters** | | |
|---|---|---|
| **Kelly diameter** | **Thread** | **Bit diameters** |
| 4 3/4 in. (121 mm) | 3 1/2 in. Reg. | 6"- 6 3/4" (152 - 171 mm) |
| 6 1/4 in. (159 mm) | 4 1/2 in. Reg. | 7 7/8"- 9" (200 - 229 mm) |
| 7 in. (178 mm) | 5 1/2 in. Reg. | 9"- 9 7/8" (229 – 251 mm) |

**High pressure DTH drilling**

Up to 7" DTH hammer and max. 8 7/8" bit diameter

Atlas Copco

**www.atlascopco.com**/blastholedrills



5849 1223 January 2013, Atlas Copco Drilling Solutions