Atlas Copco Surface drill rig

ROC F7

Recommended hole range 76–115 mm (3"–4½")

Power and economy in perfect harmony

Atlas Copco's ROC F7 surface crawler is an excellent example of company philosophy. A philosophy of producing drill rigs that give the best overall economy in terms of the cost per tonne of rock drilled – drill rigs in a class of their own. The ROC F7 is available in two versions: a single-boom model ideal for use in quarries, and a folding-boom model with the versatility to tackle all kinds of work site.

Caterpillar diesel engine

The service life of the engine depends on how hard it is worked.

The ROC F7 is equipped with a water-cooled, turbo-charged CAT diesel engine of 186 kW (253HP), at maximum drilling it only uses 150 kW (204HP). This guarantees a large power reserve, which is good news both for engine life and fuel consumption.

With the movable drill-steel support in the lower position, the drill rod is accurately and securely guided, thus minimizing hole deviation and collaring problems.

Engine exhaust emissions and engine noise levels are well below the levels prescribed by current regulations.

The compressor with more muscle

The ROC F7 is equipped with a renowned Atlas Copco screw compressor, producing at 10,5 bar (152 psi), 148 l/s (314 cfm) of free air delivery, more than enough air to provide excellent hole flushing in the worst drilling conditions.

Strong, stable undercarriage

The underside of the frame is completely sealed with flat, thick steel plates that are removable for easy access to the underside of the engine, air compressor and main pumps. The compact robust track frame design offers effective protection for both the traction motors and the hydraulic hoses. The overall dimensions of all models are within the international limits for road transport.

Hydraulic winch with remote control panel

To get an optimum view during tramming in difficult terrain the operator can remotely control the ROC F7 via a hand held control panel. From as far away as 10 metre (33') the operator can safely control the simultaneous use of the winch and tramming controls, plus track oscillation and boom movements.

To meet new international safety standards and requirements, the use of the 7 tonne Atlas Copco winch with built-in safety break is recommended whenever the incline of the ground exceeds 20°.

Good all-terrain abilities

The successful harmony of size, power, machine design and weight distribution enables the ROC F7 to make its way with ease across even the most difficult ground. The tracks are wide providing minimum ground pressure, the two traction motors develop 38 kW each (50 HP), producing 15 tonnes of traction power – more than the total weight of the machine. The track oscillation of ±10° plus a low center of gravity, excellent weight distribution and ground clearance of 405 mm (16") allows the ROC F7 to travel easily around any work site. The choice of track shoes is determined by the working environment.

Triple-grouser pads are ideal when drilling in quarries, whereas single-grouser pads are the natural choice for site work, since they offer valuable extra traction in all conditions, even in snow and mud.

Double drill-steel supports

A good drilling result needs a perfect start. For this reason, the ROC F7 has double drill-steel supports, the upper one fixed and the lower one movable. The operator raises and lowers the drill support from the seat in the cab.

In extremely difficult drilling conditions, such as loose or fissured rock, the centralizer can be supplemented with a special tube guide for additional support of the drill string.


ROC F7
Atlas Copco

Welcome aboard!

The interplay between man and machine starts in the operator's cab. For this reason, we have expended great effort in the development of a well conceived, purpose-built cab. Even the smallest details have been considered. Welcome aboard a modern work station, not only in terms of mechanical function but also ergonomics, safety and environment.

Function

- Superb view of the drill hole from the operator's station facilitates accurate collaring.
- Atlas Copco screw compressor, delivering 148 l/s at 10,5 bar, garanties excellent flushing.
- Jumbo-sized windscreen wiper as well as wipers on the right-hand, and roof windows gives good visibility even in bad weather.
- Spacious cab gives good moveability and comfort for the operator.
- Double drill steel guides gives straighter holes.
- Straighter holes and bigger burden and spacing save explosives.
- More efficient drilling saves fuel.
- CAT diesel engine with a great power reserve for trouble free operation and long service life.
- Easily accessed, lockable service hatches. (Lockability is a good security precaution at isolated worksites.)
- Easy-to-read instrumentation that is simple to learn and to use.
- 12-volt outlet for mobile telephone.
- Improved air ventilation effectively clears condensation mist from roof and side windows.
- Jumbo-sized rear-view mirror gives good visibility and safer rig moving.

Ergonomics

- Operator can monitor and control the entire drilling process without changing bodily position. Relieves neck, shoulders and back from strain.
- Vertically and laterally adjustable, ergonomically designed seat with collapsible arm rests.
- Control levers and control panel located in close proximity to the arm rests.
- Low noise level (below 80 dB).
- Very efficient air conditioning system (cooling and heating).
- More surfaces now textile covered for greater comfort.
- Rubber-damped cab mounted directly on the chassis reduces vibration and gives greater comfort during tramming.
- Adjustable sun protection for cab windows.

Safety

- Cab complies with European and international safety demands: Roll-Over Protective Structure (ROPS) and Falling Object Protective Structure (FOPS).
- Operator's seat is slewable for smooth and easy exit from and entry into the cab.
- Door fitted with safety stop that prevents crush injury to fingers etc.

Environment

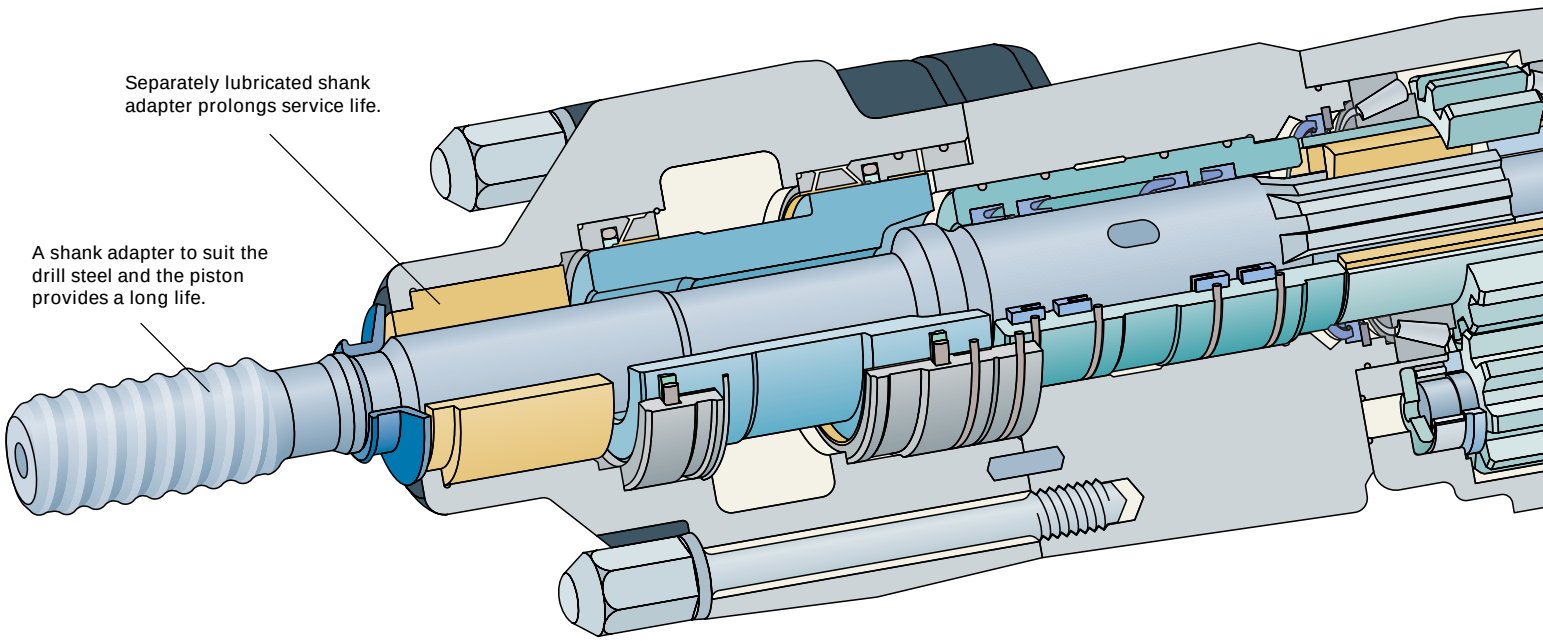
- Exhaust emission values lower by good margin than those stipulated in international standards.
- Noise values well below those stipulated in international standards.
- CFC-free air conditioning.
- Efficient dust collection and coarse separation.
- Feed fitted with collectors for lubricating oil.
- Biologically degradable hydraulic oils available as options.

Monitoring

Tramming

Drilling

The rock drill COP 2150 at the heart of the ROC F7



The ROC F7 is equipped with Atlas Copco's new 21 kW, COP 2150 rock drills.

The development of our new rock drill has been based on considerable research into how impact energy can be transferred to the drill bit as efficiently as possible, with the minimum of stress.

Thanks to the ideal balance between high drill speed and the low consumption of drilling accessories, you get optimum drilling economy. After all, there is no point in having the profit from faster drilling offset by increased costs for the drill string.

More production from less power

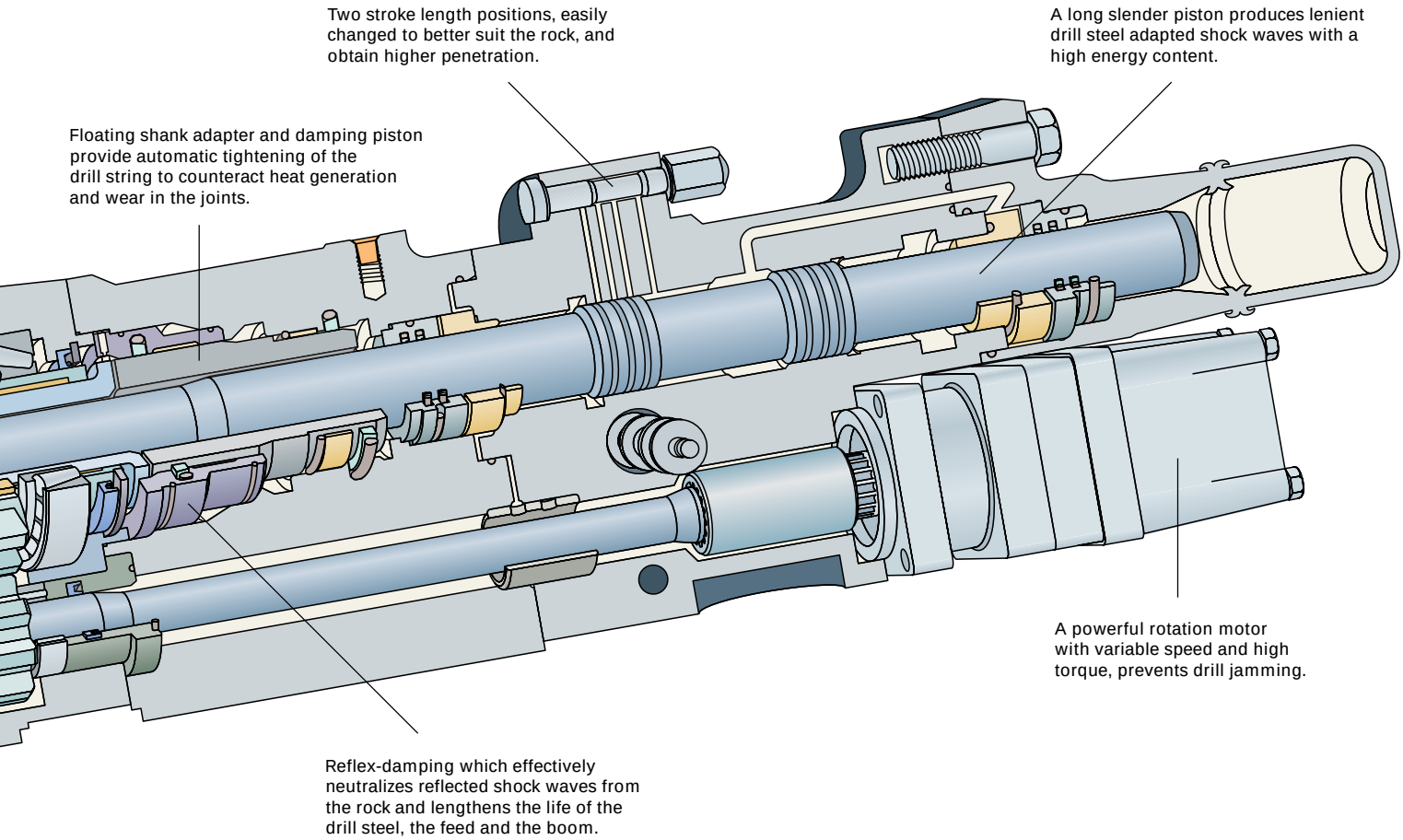
The piston is the part of the rock drill which transfers energy to the drill bit via shock waves. The characteristics and efficiency of the shock waves change, depending on the characteristics of the rock drill piston.

The ideal hammer piston in a hydraulic rock drill should therefore be of a diameter similar to the drill steel itself. The shock waves from a long, slender piston are transferred with less stress to the drill steel.

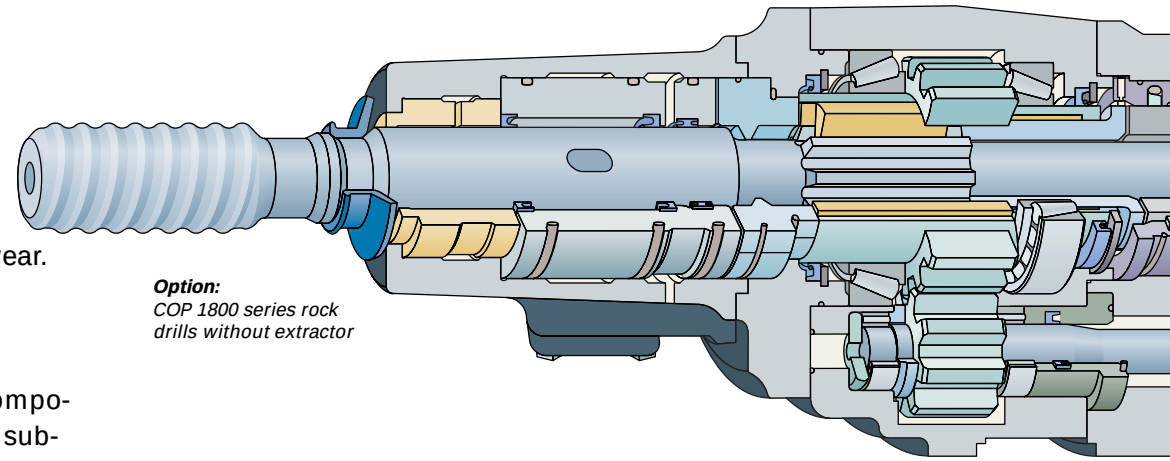
Lower stresses mean smaller power losses, and that means that more power reaches the rock it is aimed at.

Reflex-damping gives longer service life

However, there is a downside to this. More force reaching the rock also means that the return shocks



are greater. The COP 2150 is therefore equipped with a internal double-dampening system which permits greater power levels without increasing wear.



Option:
COP 1800 series rock drills without extractor

Precision-matched shank adapter

The shank adapter is the component in a rock drill which is subjected to the greatest stresses. For this reason, all shank adapters are made by Atlas Copco as original parts.

Optional built-in extractor

The extractor is easy to engage; simply leave the impact on and reverse the feed direction and the hammer automatically hammers the stuck drill string out of the hole. Since there is a continuous flow of hydraulic oil through the extractor, heat problems are avoided, thus permitting continuous use of the extractor until the steel is free. If the machine is to drill in difficult rock, where there is a high risk of the drill getting stuck, it makes sense to choose a machine with a built-in extractor.

The extractor makes it possible to use the impact energy in the opposite direction, which minimizes the risk of loosing the drill rods and the hole.

Feed system with space for extractor units

The feed beam is very rugged, reducing bending and twisting problems, and long enough to be fitted with a hammer-mounted drill steel extractor. The feed is also equipped with an offset foot spike, which not only ensures steadier drilling, but also keeps the hole from being crushed and collapsed. To minimize wear on the beam, the cradle has been equipped with special sliding pieces, which may be replaced when necessary.

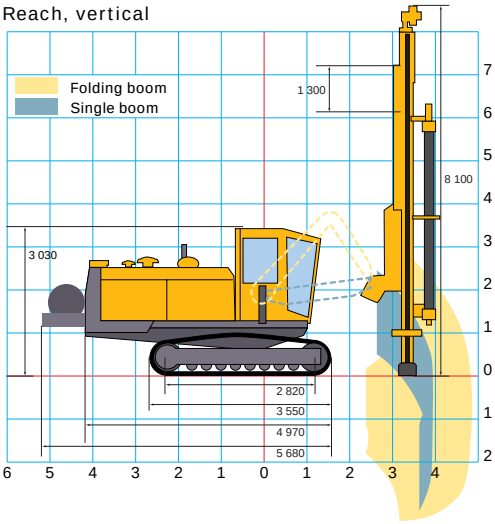
Technical Data ROC F7

Recommended drill bit diameters:	76–115 mm	3"–4 ½"
Compressor		
Atlas Copco, screw type compressor		
Working pressure	10.5 bar	152 psi
FAD	148 l/s	314 cfm
Engine		
Diesel, CAT 3126B		
Rating at 2000 rpm	186 kW	253 HP
Fuel tank		
Capacity	400 l approx.	100 gal.
Feed		
Feed length tot.	8 100 mm	26'7"
Travel length	4 770 mm	15'8"
Feed rate, max.	0.92 m/s	180 ft/min
Feed force, max.	20 kN	4 500 lbf
Tramming		
Travel speed, max.	3.6 km/h	2.2 mph
Traction force	112 kN	25 200 lbf
Hill climbing ability, without winch	20°	20°
Hill climbing ability, with winch	35°	35°
Track oscillation	±10°	±10°
Ground clearance	405 mm	16"
Hydraulic rock drill		
COP 2150, impact power	21 kw	28.1 HP
Working pressure max.	210 bar	3 045 psi
Torque	980 Nm	722 lbf.ft
Weight approx.	187 kg	413 lb
Transport dimensions		
Length		
folding boom version	13 000 mm	42'8"
single boom version	12 300 mm	40'4"
Width	2 490 mm	8'2"
Height		
folding boom version	3 200 mm	10'6"
single boom version	3 200 mm	10'6"
Weight		
folding boom version	15 700 kg	34 600 lb
single boom version	15 100 kg	33 300 lb

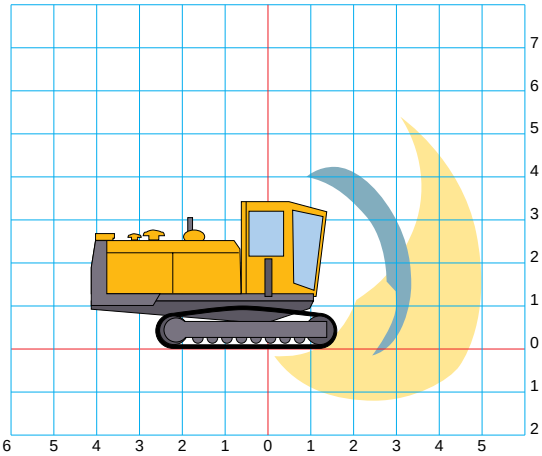
Standard equipment
Air conditioning, heater
Air flow control switch
Antijamming system
Automatic feed force control (RPC-F)
Double hydraulic drill steel support
Dust collector and pre-separator
Electric refuelling pump
Electronic hole depth and inclination instrument
Feed extension
Fuel saving device
Heavy duty tracks
Hydraulic support leg
Operator's cabin, ROPS and FOPS approved
Reduced impact pressure mechanism
Rod handling system (7+1 rods)
Toe-hole drilling kit
Two-speed traction
Water mist system excl. tank
Stepless engine speed control

Optional equipment
Cabin windows, tinted
Central lubrication system
Electric heated operator's seat
Hydraulic winch
TAC tube guides for precision drilling
Thread greasing device
COP 1838/1840
Hydraulic Extractor

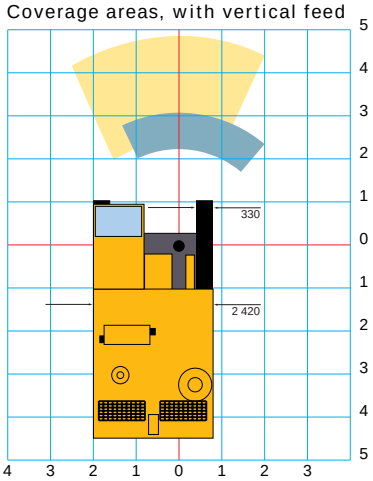
Reach, vertical



Coverage areas, with horizontal feed



Coverage areas, with vertical feed



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Total Rock Drilling Technology®

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