

Atlas Copco Surface drill rigs

SmartRig ROC® D7C, D7C LF and D9C

Technical specification



High productivity in focus

- The total solution from planning and drilling to full documentation
- High productivity drilling with excellent hole quality and longer life time on consumables
- Substantially lower energy consumption through use of the latest technology

SmartRig ROC D7C and D9C are intended for construction sites and aggregate quarries, SmartRig ROC D7C LF (Long Feed) is primarily designed for selective mining. The main components are:

- Track frames with single grouser pads and cleanin holes, hydraulic track oscillation and two speed traction
 - size FL 4 HD (ROC D7C)
 - size FL 6 (ROC D9C)
- Caterpillar turbo charged diesel engine C 7
- Atlas Copco screw type compressor
- Operator's cabin, ROPS and FOPS approved
- RCS computerized Rig Control System
- Folding boom system
- Aluminum profile feed beam
- Hydraulic cylinder feed system
- Carousel type rod handling system
- Hydraulic rock drill
- Dust collection system

Hole range			
Recommended hole range			
ROC D7C and D7C LF	T38, T45, T51	64-115 mm	2 ½" - 4 ½"
ROC D9C	T45, T51	76-115 mm	3" - 4 ½"
Hydraulic rod handling system for max hole depth, with 3,6 m (12') extension rods			
ROC D7C	T38, T45	28 m	92'
ROC D7C	T51	21 m	69'
ROC D9C	T45, T51	28 m	92'
Hydraulic rod adding system for max hole depth, with 6,1 m + 4,2 m (20' + 14') extension rods			
ROC D7C LF	T38, T45, T51	10 m	32'

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Specifications

Engine

Caterpillar turbo charged, diesel engine, CAT C7, Tier III/stage 3
 • Power rating at 2200 rpm 168 kW 225 HP

Feed

Hydraulic cylinder feed with hose guide and double drill steel support with movable lower guide/dust hood

- Feed extension 1 400 mm 4'7"
- Feed rate, max 0.92 m/s 184 ft/min
- Feed force, max 20 kN 4 400 lbf
- Tractive pull, max 20 kN 4 400 lbf

ROC D7C/D9C

- Total length 7 140 mm 23'5"
- Travel length 4 240 mm 14'

ROC D7C LF

- Total length 8 240 mm 27'7"
- Travel length 5 670 mm 18'7"

Dust collector DCT 110D

- Filter area 11 m² 118 sq.ft
- Number of filter elements 11 pcs
- Suction capacity at 500 mm wg 560 l/s 1 200 cfm
- Suction hose diam 127 mm 5"
- Cleaning air pressure, max 7.5 bar 109 psi
- Cleaning air consumption 2-4 l/pulse 0.06 - 0.12 cu.ft/pulse

Safety cabin

- ROPS and FOPS approved with rubber vibration dampers
- 2 x wipers with washer
- Clear laminated glass (front and roof windows)
- Clear toughened glass (side and rear windows)
- Fully adjustable operator's seat
- Adjustable foot rest
- Cabin light
- Rig inclination indicator
- Rear view mirror
- Fire extinguisher, 6 kg (13 lbs) dry chemical type ABE class III type
- Outlet socket, 24 V
- Prepared with speakers for CD-radio or DVD radio
- Combined front mounted platform/tool box
- Electric combined engine/inclination/hole depth instrument in main computer display

Air conditioner

- Refrigerant R134a
- Cooling capacity 5,5 kW
- Fan suction capacity 125 l/s 265 cfm

Compressor

Atlas Copco OIS K-27-C106 GD, screw compressor
 ROC D7C/D7C LF

- Working pressure, max 10.5 bar 152 psi
- FAD, at normal working pressure 127 l/s 270 cfm

ROC D9C

- Working pressure, max 10.5 bar 152 psi
- FAD, at normal working pressure 136 l/s 288 cfm

Hydraulic system

- Anti-jamming
- Automatic feed force control RPC-F
- Damper pressure control - impact DPC-I

Hydraulic oil cooler

- Max ambient temperature 50°C 122°F

Pumps

- Axial piston pump (1) 150 l/min 39.6 US gal/min
- Gear pump (2) 80 l/min 21.1 US gal/min
- Gear pump (3) 40 l/min 10.6 US gal/min
- Gear pump (4) 40 l/min 10.6 US gal/min

Return and drainage filters

- Filtration rate 16 µm absolute

Electrical system

- Voltage 24 V
- Batteries 2 x 12 V, 185 Ah
- Alternator 28 V, 95 Ah
- Work lights, front 4 x 70 W
- Work lights, rear 2 x 70 W
- Work lights, feed 2 x 70 W
- Warning lamp and reverse buzzer

Volumes

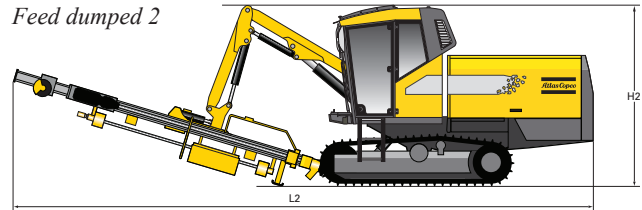
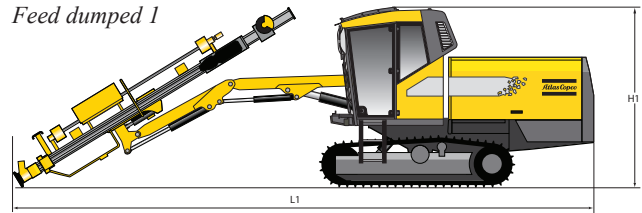
- Hydraulic oil tank 250 l 65 US gal
- Hydraulic system, total 300 l 79 US gal
- Compressor oil 24 l 6.3 US gal
- Diesel engine oil 28 l 7.4 US gal
- Diesel engine, cooling water 35 l 9.2 US gal
- Diesel engine, fuel tank 370 l 98 US gal
- Traction gear 3 l 0.8 US gal
- Lubrication tank (ECL) 10 l 2.6 US gal

Hydraulic rock drill

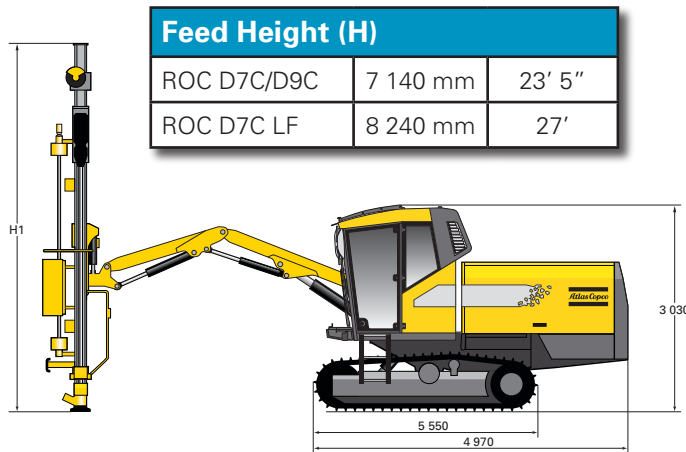
Rock drill	Drill rig	Impact power		Hydraulic pressure, max		Impact rate	Torque, max		Weight approx	
COP 1840	ROC D7C and D7C LF	18 kW	24.5 hp	230 bar	3 335 psi	42-50 Hz	950 Nm	701 lbf/ft	175 kg	385 lb
COP 1840 EX									230 kg	507 lb
COP 2160	ROC D9C	21 kW	28 hp	220 bar	3 190 psi	36 Hz	1 810 Nm	1 335 lbf/ft	187 kg	412 lb
COP 2160 EX									249 kg	549 lb

Transport dimensions

Hight and lenght			
Feed dumped 1			
ROC D7C/D9C	Height (H1)	3 200 mm	10' 6"
ROC D7C/D9C	Length (L1)	11 000 mm	36'
ROC D7C LF	Height (H1)	3 200 mm	10' 6"
ROC D7C LF	Length (L1)	11 970 mm	38' 8"
Feed dumped 2			
ROC D7C/D9C	Height (H2)	3 500 mm	11' 6"
ROC D7C/D9C	Length (L2)	10 900 mm	35' 9"

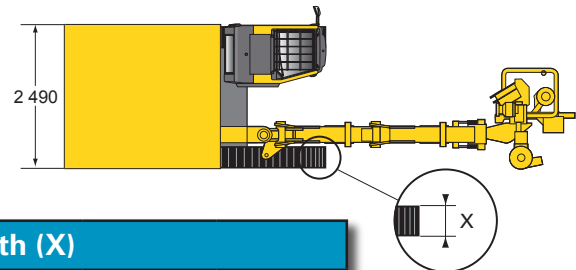


Dimensions and weight



Feed Height (H)		
ROC D7C/D9C	7 140 mm	23' 5"
ROC D7C LF	8 240 mm	27'

Weight		
Standard unit excluding all options and drill steel		
ROC D7C	14 500 kg	32 000 lb
ROC D9C	15 100 kg	33 290 lb
ROC D7C LF	14 200 kg	31 305 lb



Track shoe width (X)		
ROC D7C with FL 4 HD	305 mm	1'
ROC D9C with FL 6	330 mm	1' 1"

Selection of optional equipment

Carrier

- Track chains with tripple grouser pads (FL4 HD)
- FL 6 track frames (ROC D7C)
- Hydraulic support leg
- Hydraulic winch, remote controlled with towing eye and wire guides
- Diesel engine preheater
- Cooling fan and DCT speed regulating system
- Air flow switch
- High/low air flushing system
- Electric refuelling pump
- Service hand lights inside canopy, 2 pcs
- Xenon work lights, 2 pcs on top of cab pointing forward and 2 pcs on top of cab pointing to the rear
- Combined warning sound and warning light
- ProCom satellite based drill rig monitoring system (only in combination with a written service agreement)

Safety cabin

- Clear laminated glass (front and roof windows)
- Tinted toughened glass (side and rear windows)
- Wiper for right hand side window
- Sun shade kit (rear side and rear windows)
- Cab heating
- Electric heated operator's seat
- Radio/CD
- Reverse camera with cab mounted monitor. May also be used for monitoring DVD

Feed

- Toe hole drilling kit (not for LF version)
- Silencing kit (not for LF version)
- TAC guide tube guides for drill steel support
 - TAC 45 mm for 45 mm guide tube
 - TAC 56 mm for 56 mm guide tube

- TAC 64 mm for 64 mm guide tube
- TAC 76 mm for 76 mm guide tube

SmartRig upgrading functions

- Laser receiver upgrading kit
- Automatic feed alignment
- Automatic rod adding system
- Hole Navigation System (HNS) sensors and soft ware
- GPS compass for parallel holes

Lube oil, lube system and water mist system

- Rock drill oil collecting system (standard on D9C)
- Central lubrication system, type Lincoln
- Thread greasing devise ECG (with oil)
- Thread greasing device, brush type (with grease)
- Artic hydraulic oil, VG 32
- Tropical hydraulic oil, VG 68

- Biological hydraulic oil, VG 46
- Water mist system, 120 l water tank
- Water mist system, excluding tank

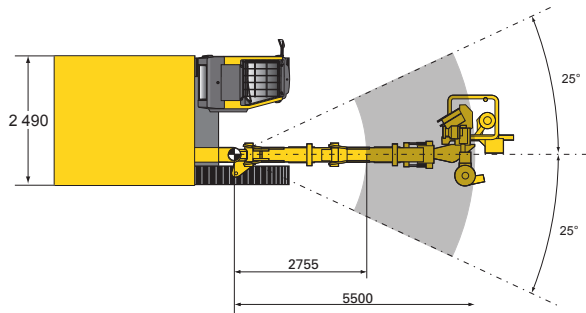
Dust control

- Dust pre-separator (standard on D9C)
- Rubber disc for DCT
- Rubber skirt for DCT

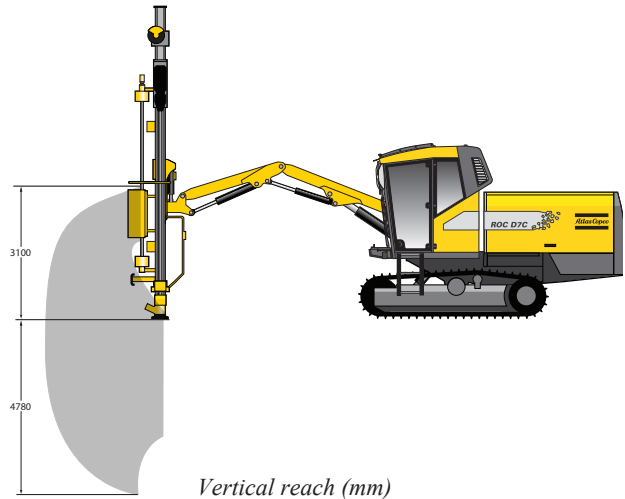
Delivered equipment, not mounted

- Gas charging equipment for rock drill
- First 50 hours service kit for compressor
- Conversion kit R38/T38
- Conversion kit T45
- Conversion kit T51
- ROC MANAGER with bench plan - PC soft ware
- RCS service tool box

Coverage areas

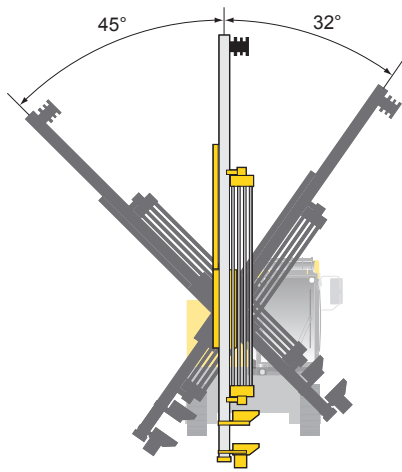


Horizontal reach (mm)

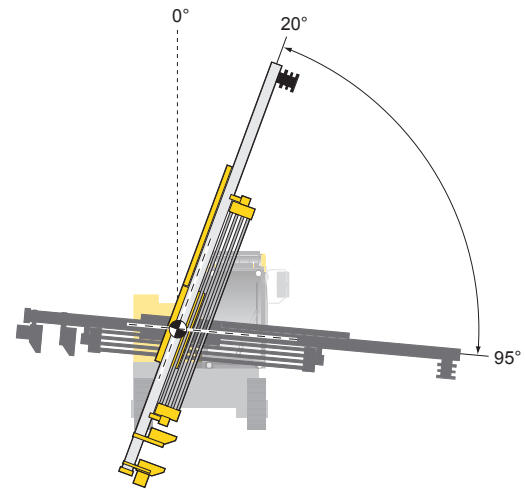


Vertical reach (mm)

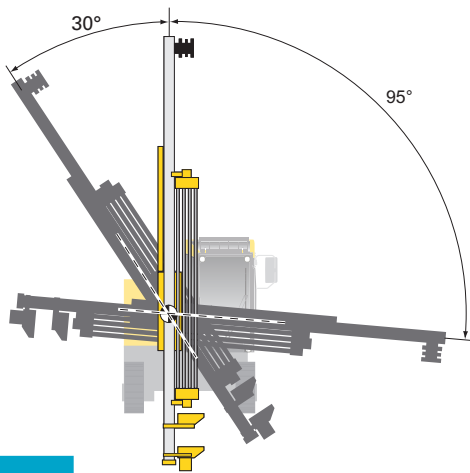
Feed swing angles



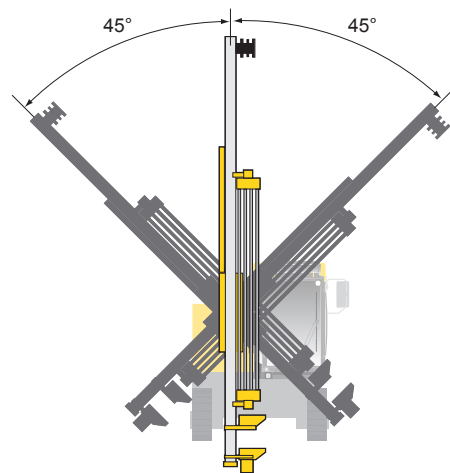
Feed without toe-hole kit



Feed without toe-hole kit but after reconnection for horizontal feed



Feed with toe-hole kit



ROC D7C LF