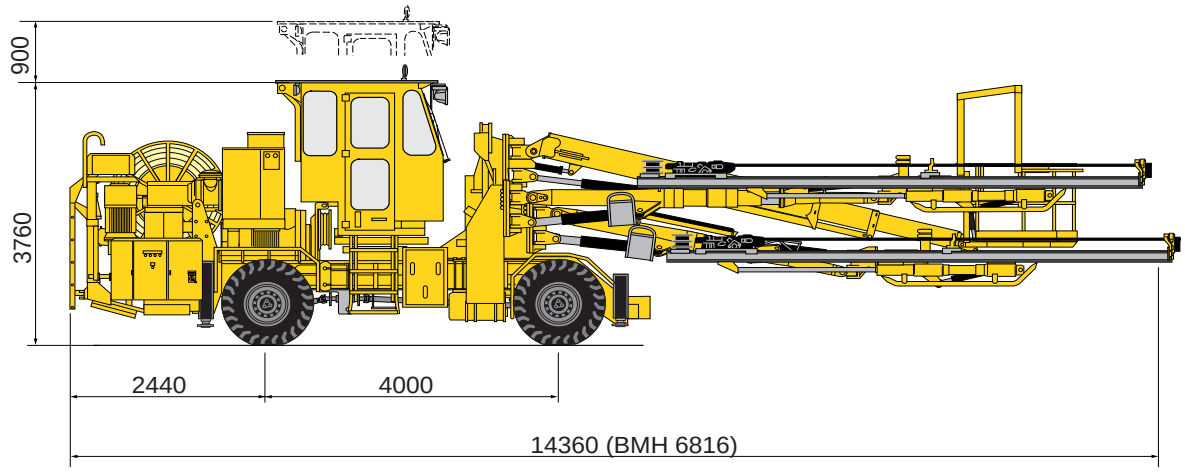
Atlas Copco

Technical Specification

Rocket Boomer 353E

Hydraulic tunnelling rig with three BUT 35 booms and COP 1838 rock drills.

For cross sections up to 168 m²



Rig with optional equipment. All dimensions in mm.

Rocket Boomer 353E with cabin in transport position. During drilling the cabin can be raised.

Features

- Automatic drilling system giving increased drilling capacity and outstanding drill steel economy. RPCF (Rotation Pressure Controlled Feed force) and FPCI (Feed Pressure Controlled Impact power) give excellent anti-jamming function and adjusts feed force and impact power to variations in drilling conditions. Separate pumps for percussion, dampening/positioning and rotation for independent control and maximum output. Logical, proportional controls with one joy-stick makes drilling easy and accurate.
- COP 1838 rock drill with modern double reflex dampening giving genuine high speed drilling and excellent drill steel economy. New lubrication system with separate lubrication of driver and gear, pressurized sidebolts and mating surfaces gives reliable operation, low maintenance cost and long intervals between overhauls.
- Compact transport width of 2.5 m only.
- Extended coverage area of 15.3 width x 12.6 m height due to 3.5 m swing elevation of outer booms.
- BMH 6800 heavy duty aluminium hydraulic feeds with double bottom for high torsional resistance. Snap-on stainless steel sleeves and polymer contact pads for long life and low maintenance cost.
- BUT 35 heavy-duty booms for direct, fast and accurate positioning between holes. Improved linkage bearings in main boom joints and new axial bearings in all boom joints.
- Sturdy carrier with all wheel drive. Powered by a turbocharged, water-cooled 6-cylinder, low emission diesel engine for high mobility. Four jacks for stable set up.
- Basic rig includes telescopic FOPS-approved protective roof, water booster pump, cable reel and working and traming lights.

Main components

Rock drill	3 x COP 1838ME
Feed	3 x BMH 6800-series
Boom	3 x BUT 35
Boom console	Swing elevation type
Drilling system	ECS 18-3-55
Carrier	DC 141

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Rock drill COP 1838ME

Shank adapters	R32, R38 or T38
Height over drill centre	88 mm
Impact power	20 kW
Impact rate	60 Hz
Hydraulic pressure, max.	230 bar
Rotation system	separate rotation
Rotation speed	0-300 rpm
Rotation torque, max.	540 Nm (alt.700 Nm)
Lub. air consump. (at 3 bar)	5 l/s
Water consumption	1.1 l/s
Weight	171 kg
Sound level	<106 dB(A)

Feeds BMH 6800

	BMH 6814	BMH 6816	BMH 6818	BMH 6820
Total length (mm)	5882	6502	7102	7712
Drill steel length (mm)	4310	4920	5530	6100
Hole depth (mm)	4048	4668	5268	5878
Weight,incl.rock drill (kg)	631	665	696	721
Feed force, max. (kN)	20.0	20.0	20.0	20.0

Boom BUT 35F

Feed extension	1800 mm
Boom extension	1600 mm
Parallel holding	Complete
Feed roll-over	360 degrees
Max. lifting angle	+65 degrees –30 degrees
Max. swinging angle	±45 degrees
Weight, boom only	2920 kg

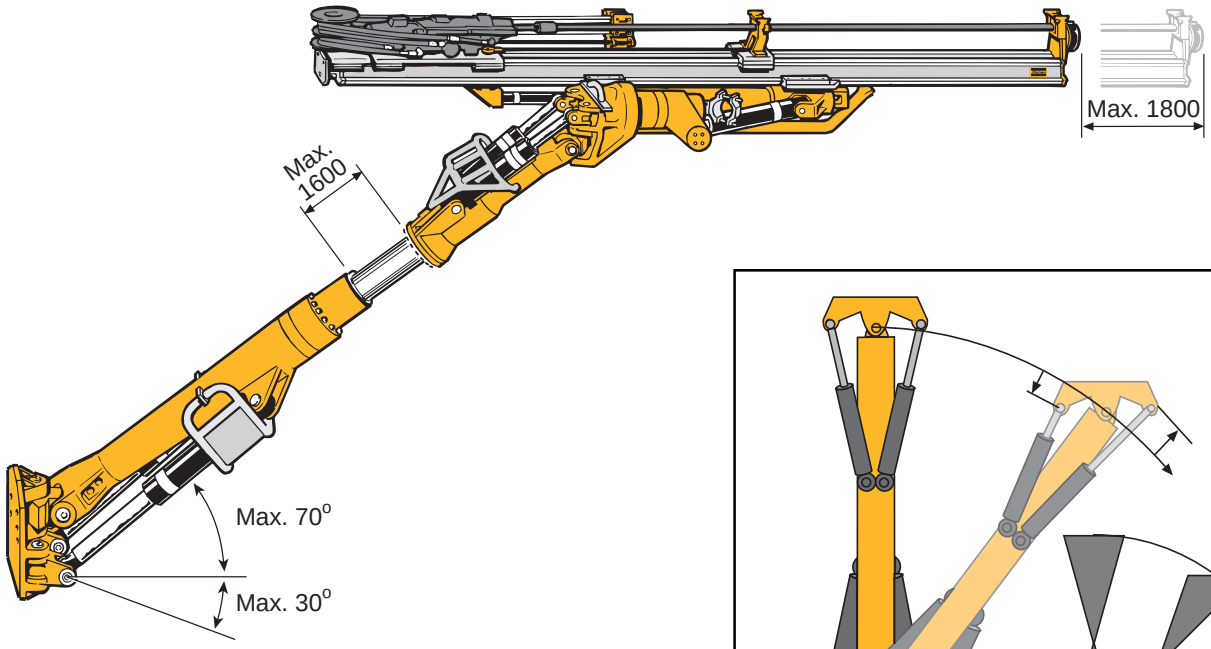
Carrier

- Type Atlas Copco DC 141
- Deutz BF6M 1013C diesel engine, water- cooled turbocharged 170 kW (231 hp) at 2300 rpm, 847 Nm at 1400 rpm
- All wheel drive
- Hydrostatic power steering system
- Hydrodynamic Clark 32000 transmission
- ZF AP-415/H boom section axle
- ZF APL-B765 engine section axle
- Differential lock , limited slip
- Tyres 12.00 R24 Michelin XKA
- Hydraulic jacks 2 (extendable) at front and 2 at rear
- Service brakes: Two separate circuits, hydraulically applied, fully enclosed wet disc brakes
- Emergency and parking brakes: SAHR (Spring Applied Hydraulic Released)
- Gradeability 1:4 at max. load on drive wheels
- Max. travel speed18 km/hr

Drilling system ECS 18-3-55

- Electronic Control System, PLC-based
- Hydraulic pumps: 3 separate units, one for each boom. Each unit consists of one variable pump for percussion, and two constant flow pumps for rotation and dampening.
- System pressure 150-250 bar
- Hydraulic oil tank, volume 480
- Compressor type Atlas Copco LE 75 capacity 17.5 l/s at 6 bar
- Water booster pump capacity 300l/min at 14 bar boost
- Minimum water inlet pressure 4 bar

Atlas Copco hydraulic boom BUT 35.



Double tripod suspension gives accurate parallel holding in all directions.

Electrical system

- Total installed power 190 kW
- Main motors 3 x 55 kW
- Voltage (as per customer specification) 380 - 690 V, optional 1000 V
- Frequency (as per customer specification) 50-60 Hz
- Starting method - star/delta 380 - 690V; direct 1000V

Recommended cable size and length

Voltage	Type	Dimension	Diameter	Length
400 V	RDOT	4x150 mm²	67 mm	60 m
440 V	RDOT	4x120 mm²	60 mm	75 m
440 V	Buflex	3x185+3x35 mm²	56 mm	90 m
460-500 V	RDOT	4x120 mm²	60 mm	75 m
460-500 V	Buflex	3x150+3x25 mm²	52 mm	100 m
500-550 V	RDOT	4x95 mm²	55 mm	90 m
500-550 V	Buflex	3x120+3x25 mm²	46 mm	135 m
660-700 V	RDOT	4x70 mm²	49 mm	110 m
660-700 V	Buflex	3x95+3x16 mm²	42 mm	155 m
1000 V	Buflex	3x50+3x10 mm²	32 mm	275 m

Dimensions and weights

Width		2500 mm
Height (min. transport height for rig equipped with protective roof)		3300 mm
Length (with 16 ft feeds)		14370 mm
Turning radius	outer	10400 mm
	inner	5650 mm
Gross weight**		39000 kg
Axle load	boom side	30000 kg
	engine side	9000 kg

** = Dependingon equipment

Optional equipment

- Liftable, sound insulated operator's cabin (<85 dB(A) noise level)
- Extended boom reach with 700 mm long fixed boom segment (not for booms with BMHT)
- Rod Adding System, RAS, for extension drilling of long holes, using SPEEDROD extension rods. Max 18 ft RAS on standard BUT 35 booms. Max 16 ft RAS on booms with fixed segment extension.
- Hydraulic drill steel gripper BSH 110 for extension drilling
- Telescopic feed BMHT 6800-series for left/right handed booms (only for BUT 35 standard booms, not for booms with fixed segments extension)
- Electronic look-out indicator, on high resolution colour display
- Bever Data guidence system
- Service platform HL 230-MB
- Protective roof for service platform, FOPS approved
- Illuminated stairs
- Automatic boom lubrication system, up to boom extension
- Grease gun with hose and reel
- Shelves for drill bits and tools
- High torque rotation motor on rock drill (700 Nm)
- High altitude settings
- Exhaust water scrubber or catalyzer
- Electric cable type RDOT or Buflex, see recommendations
- Dual controls for cable reel
- Plug for cable
- Power supply (incl. male plug)
- Electric outlet for accessories, 32 Amp.
- Electrical system for 1000V
- Water hose reel for 60 meter of 2" water hose
- Dual controls for water hose reel
- Hole blowing kit
- Water mist flushing (with external air and water)
- Big hole drilling kit
- Electric oil filling pump
- Hydraulic Swellex pump
- Ansul 101, fire suppression system
- Foam filled tyres
- Reverse alarm and Beacon

Rod Adding System, RAS (Optional)

RAS is a mechanized rod adding system used for drilling of "longer than feed" holes, for example for grouting, bolting, investigation or longer drill rounds. It consists of a control unit and two mechanical grippers mounted on the feed beam.

The drilling cycle starts with one SPEEDROD in the feed and another in the gripers. When the first rod is drilled into the rock, the drill steel support gripps the rod at the coupling end and the rod is uncoupled. The rockdrill reverses after which the second rod is placed on the feed by the grippers. Thereafter the second rod is coupled into the rod already in the hole and the drilling of the hole is continued. Additional extension rods can be loaded manually on the grippers.

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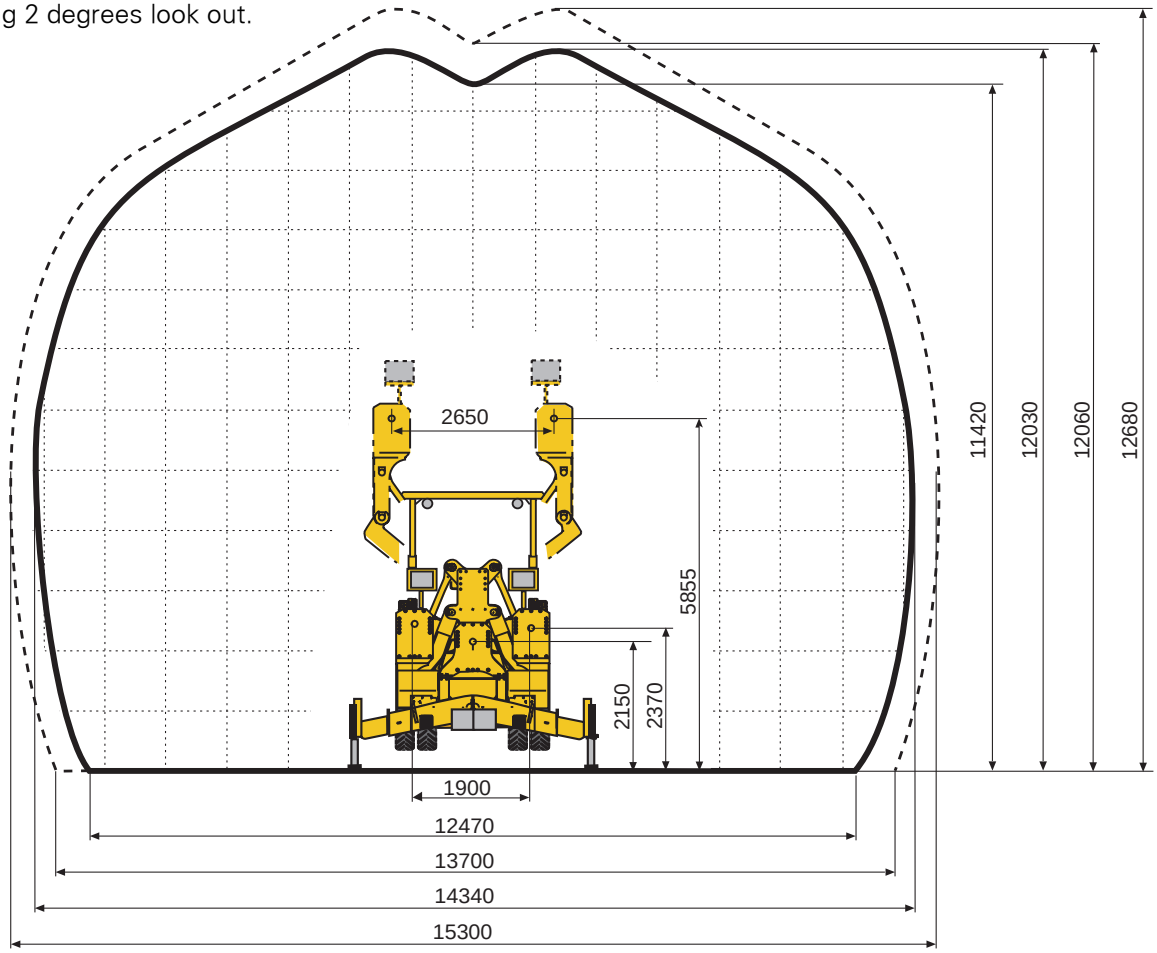
Coverage area

Including 2 degrees look out.



– – – = with 700 mm fixed segment extension.

Scale 1:125

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Drifter rods

Dimension	Min. hole dia, mm
T38-Hex 35-R32	45
T38-Hex 35-R32 SPEEDROD	45
R38-Hex 35-R32	45
R38-Rnd 39- R32 SPEEDROD	45
T38-Hex 35-R35	48
T38-Hex 35-R35 SPEEDROD	48
T38-Rnd 39-R35	48
T38-Rnd 39-R35 SPEEDROD	48

Extension rods for injection drilling

Dimension	Min. hole dia, mm
T38 SPEEDROD	64
R32 SPEEDROD	51

Shank adapters

Thread	Dia, mm	Length, mm	Part No.
T38	38	435	7304 3652 01
R38	38	435	7804 3652 01
T38	38	525	7304 3656 01*
R32	38	525	7803 3656 01*

**= Intended for roof drilling and extension drilling with BSH 110.*

Couplings

Thread	Dia, mm	Length, mm	Part No.
T38	55	190	7314 3355 00
R38	55	170	7994 3655 00

For other dimensions and more information please see Atlas Copco Rock Tools catalogue, printed matter No. 9851 1622 or Selection Guide for Tunnelling and Drifting, printed matter No. 9851 1637.

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