

DIAMEC® U8 characteristics

Atlas Copco DIAMEC® U8 PHC

Core drilling rig for operations with wireline (B-H) and conventional core barrels.



Atlas Copco Craellius AB Original AB, 01-11

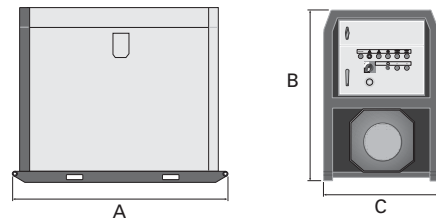
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Power Units

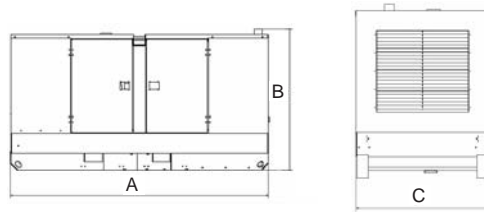
The power pack consists of a rugged skid frame on which is mounted the 110 kW electric motor or 150 kW diesel engine, with two hydraulic pumps. The main pump powers rotation, fast travel, wireline hoist and high water speed. The service pump powers low water speed, feed and the manual release of chuck and clamp.

The large 130 L (34 gal US) reservoir provides flooded suction for all pumps. Hydraulic oil can only be added to the tank through a hand pump and filter preventing contamination of the hydraulic system. An external sight gauge allows easy monitoring of hydraulic oil level and temperature. A full flow, 10 micron beta rated return filter with visual indicator keeps the hydraulic oil clean. A water or air cooled heat exchanger cools the hydraulic oil. Automated shut down is provided in case of low oil level or high temperature.

	Electric	Diesel	CAT 3126B	
Motor rating	110 kW at 1450 rpm	149 kW at 1800 rpm		
Main pump				
max flow	195 l/min (50 US gpm)	195 l/min (50 US gpm)		
max pressure	315 bar (4500 psi)	315 bar (4500 psi)		
Service pump				
max flow	65 l/min (17 US gpm)	65 l/min (16 US gpm)		
max pressure	240 bar (3480 psi)	240 bar (3480 psi)		



Power unit Electrical



Power unit Diesel

Dimensions

Power unit version	Electric		Diesel	
	mm	in	mm	in
A	2023	79	3112	122
B	1400	55	1715	67
C	890	35	1300	51

Weights

Electric		Diesel	
kg	lb	kg	lb
1400	2800	2360	5200

DIAMEC® U8 Application related accessories

1. Flush pump alternatives

	Flow	Pressure
TRIDO® 140 H	140 l/min (37 US gpm)	70 bar (1000 psi)



TRIDO® 140

2. Wireline hoist

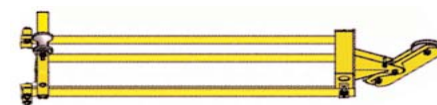
Wireline hoist with levelwind.

Data	Wireline hoist	
Capacity	2000 m (6565 ft) of 4.8 mm (3/16 in) wire rope	
Capacity	1200 m (3940 ft) of 6.5 mm (1/4 in) wire rope	
Pull min	3600 N (810 lbf)	(Full drum)
max	9700 N (2180 lbf)	(Empty drum)
Hoisting speed		
min	1.8 m/s (360 fpm)	(Empty drum)
max	4.8 m/s (950 fpm)	(Full drum)
Weight	96 kg	

3. Mast extension



Surface: Length 3 m



Underground: Length 2 m

Features

- * **Deep hole** underground or surface hydraulic drill. Outstanding for wireline drilling to H size. Rod holder pass P remain shell
- * **Depth** rated to 1500 m N Rod.
- * **High efficiency** long stroke feed cylinder eliminates chains or wire. Feed cylinder push equals pull is ideal for underground applications.
- * **Three-module design** allows quick set-up in confined areas.
- * **Proven reliability** in world wide applications.
- * **Integral skid** with hydraulic feed frame raise and dump feature provides 360° drilling capability.
- * **Rod handling** feature (automatic chuck and rod holder synchronization).
- * **Power float** of rotation unit during breaking / making joints prevents thread damage.
- * **More Power** is available for drilling from a electric 110kW or diesel 150 kW power unit, a more efficient rotation unit and hydraulic system. The result is higher rpm and penetration rates to the bottom of the hole. The optional waterpump can be run at full flow and pressure for faster pump in.
- * **Environmental** friendly

A well proven Hydraulic Control System

- **Pilot Control Console** makes possible higher flows and pressure while maintaining a compact and light control console with improved ergonomics and safety.
- **Increased Functionality** has been provided in the new hydraulic circuit in addition to the automatic synchronization of chuck and rod holder.
- **Pressure Filtration** protects the hydraulic circuit and pilot control console from contamination that can enter the circuit when hydraulic hoses are disconnected for moving the drill. Pressure filters and main valves are mounted on the drill unit.
- **Water Flow Meters and RPM gauges** (optional equipment) provide additional information for effective drilling.
- **Convenient Water Control System** has the water pressure release valve built into the console for convenience in setting up the drill.
- **Safety and Ergonomics** have been factored into the design. An improved E-stop on the drill unit is standard, a mechanical rod guard is optional. The hydraulic control console has been designed for ease of operation.

Atlas Copco reserves the right to make modifications without prior notice.

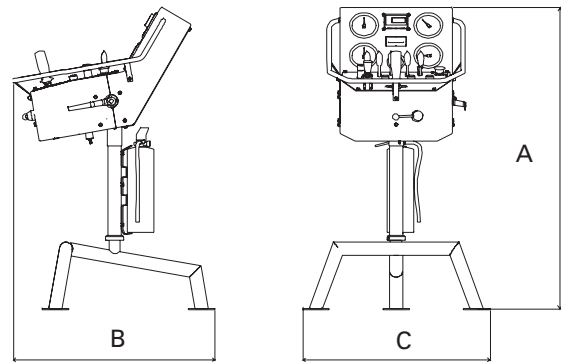
Control Panel

The control panel contains the valves which control direction and speed (continuously variable) of rotation, fast travel and wireline hoist. The special design prevents release of the chuck before the clamp has fully gripped the rods and vice versa.

A power float system prevents thread wear when making and breaking rods.

Gauges are provided for rotation pressure, bit weight, and drilling water pressure. An electronic tachometer (optional) gives continuous readout of bit rpm. Water pump (optional) flow is continuously variable from the console.

All hydraulic hose connections to the power pack, drill head and feed frame are easy to disconnect for convenience in moving and setting up.



Dimensions	mm		in	
	A	1125	44 1/2	
B	750	29 1/2		
C	700	27 1/2		
Weight		kg		lb
Control panel (incl. hoses)		310 kg		680 lbs

Feed Frame

The feed frame is fabricated from rectangular hollow section providing a robust drill platform. Bolted, replaceable sliding rails provide an accurate guide for the drill head cradle.

The feed cylinder is situated between the drill slide members. It is of a unique design which allows 1.8m (71 in) of head travel without the use of chains or wire ropes. The cylinder consists of a stationary centre rod and two nested cylinders, the outer cylinder sliding over the intermediate cylinder.

The design has the advantage of doing away with chains and sprockets, or wire ropes and pulleys, resulting in higher efficiency and less maintenance. The feed cylinder sliding surfaces are hard chromed for maximum wear and corrosion resistance. The feed cylinder circuit is equipped with dual counter balance valves for smooth control of heavy rod loads. The feed frame is raised and dumped hydraulically.

Maximum Pull and Thrust	133 kN (29 000 lbf)
Fast travel speed, rod handling	0.73 m/sec
Feed Cylinder Stroke	1.8 m (71 in)
Feed Frame Hyd. Raise	Standard
Feed Frame Hyd. Dump	Standard

Capacities

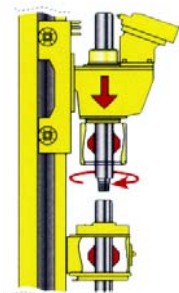
Drill rod size	Approx. drilling depth	
B Wireline	2000 m	6558 ft
N	1500 m	4920 ft
H	1000 m	3280 ft

"The above capacity values only serve as a guideline, and refer to vertical, downward drilling in homogeneous rock".

Rod Holder

The rod holder is hydraulically opened, and closed by gas pressure. In case of loss of hydraulic pressure, the rod holder closes instantly. The gas pressure can be conveniently monitored.

Max. rod size	117,5 mm	(4.6 in)
Bore (without jaws)	124 mm	(4.9 in)
Axial holding force	133 kN	(29950 lbf)
Number of jaws	2	



Rotation Unit

The B-H size unit has two alternatives of rotation motors which affect the maximum torque and speed.

The rotation unit consists of a hydraulic motor, a sealed gear box, a hollow spindle and an Atlas Copco patented hydraulic chuck. The chuck grips the rod by hydraulic pressure which is adjustable. The chuck jaws are quick change type.

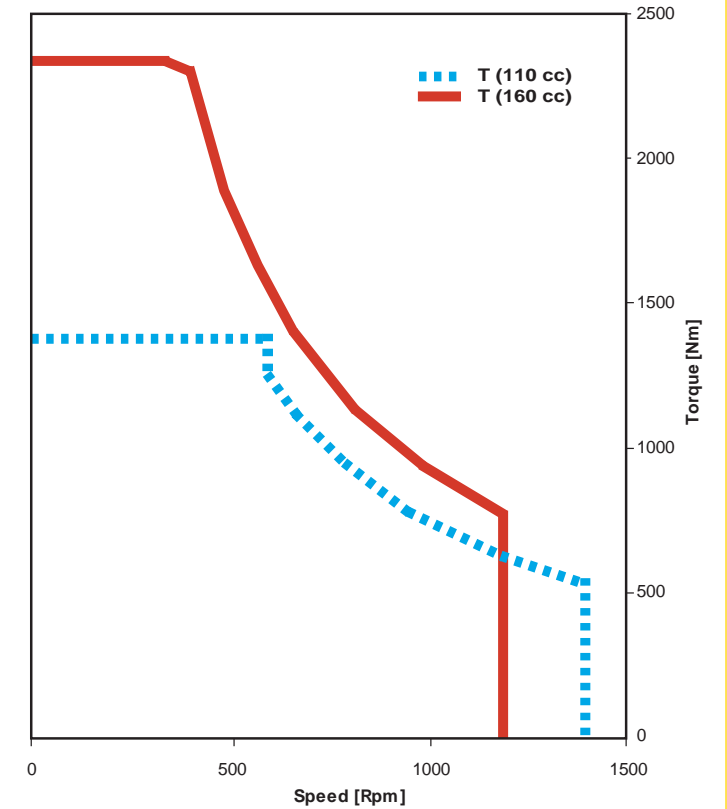
The rotation speed is adjustable from the control console. The chuck and rod holder are synchronized.

Rotation Unit B - H size

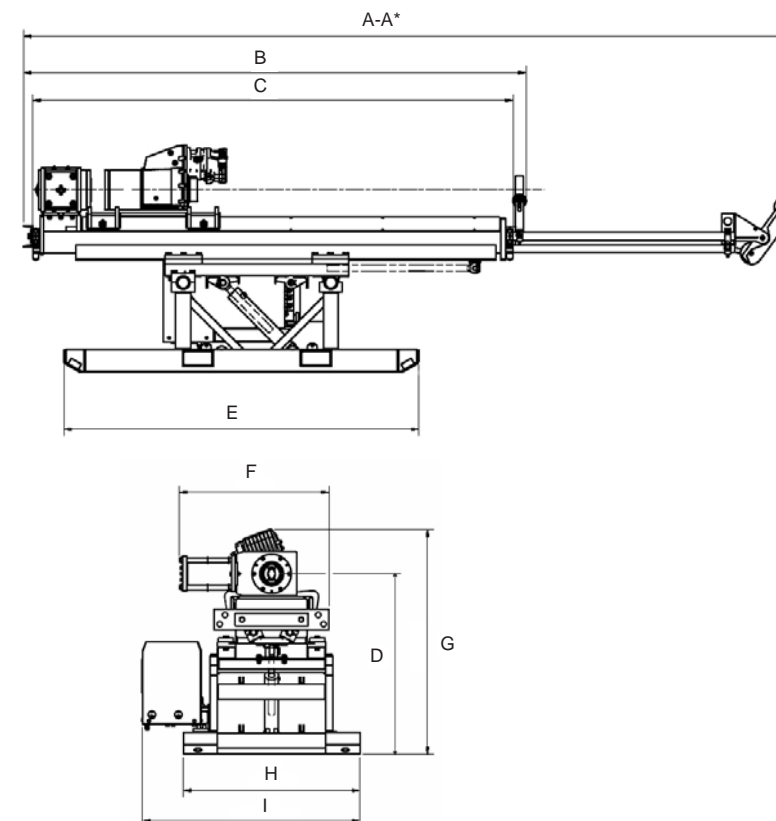
Rotation	Standard	High torque version
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Drill Rod Size	B-H	B-H
Maximum rotation speed (rpm)	1400	1200
Maximum torque (Nm)	1275	2300
	(940)	(1629)
Rotation motor (cc)	110	160
Spindle inner diameter (mm)	101	101
	(3.97)	(3.97)
Chuck axial holding force (kN)	150	150
	(33700)	(33700)

B-H rotation head



Measurements in mm (in.)



Dimensions

Feed version	mm		in	
A	3755	147,8		
A*	5050	199		
B	3287	129		
C	3140	123		
D	1197	47		
E	2320	91		
F	986	38,8		
G	1488	58,6		
H	1162	45,7		
I	1432	56,3		
Weight		kg		lb
Drill feed frame assembly incl. Skid and Wireline Hoist		2500 kg		5510 lbs

* Length including underground mast extension