

# Christensen 140

Surface core drilling rig for exploration drilling

Hole size: B, N, H and P



# Meeting the highest standards

Epiroc's Christensen surface core drilling rigs have a well-earned reputation for their reliability, safety and high performance.

Large core samples, a gear-driven rotation unit and a constant penetration rate enable the Christensen 140 to boost your productivity and profits. The durable

Christensen 140 rig is also designed to help you meet tough environmental protection demands anywhere in the world.



## ⊕ Main benefits

**Safety on-site** thanks to compliance with the latest EN 16228 safety standards

**High productivity** through a new two gear rotation unit which allows increased time between overhaul with minimal maintenance

**High efficiency** thanks to a sturdy mast capable of handling 6 meter core barrels

# Safe and highly productive

Christensen 140 has been designed to meet international safety standards and environmental requirements. This rig strikes right at the core of the matter – maximization of your company's long-term efficiency and profits.



## + Geared-up for the future

The new gear-driven rotation unit requires less maintenance and makes operation easier and more productive. The gearbox and hydraulic chuck further increase productivity while lowering costs associated with maintenance and downtime. The newly designed mast is strong and sturdy, supporting the full weight of the drill string. It handles 6-meter core barrels, allowing you to extract more core per shift.



## + Designed to be safe

Christensen 140 naturally meets the most recent European EN 16228 safety requirements with clever features such as a safety guard with an interlock function that automatically stops the rig when activated. As they work, operators are kept away from moving parts and out of harm's way.



## + Hands-free rod-tripping

Christensen 140 can be equipped with a state-of-the-art rod-handling system that relieves the operator and removes many of the hazardous operations in the drilling process; such as tripping-out rods. Thanks to hands-free rod-tripping the operator assistant is able to handle the assistant control panel instead of manually adding the rods. This means less operator fatigue and fewer injuries.



## A comprehensive service offering

Even the best equipment needs to be serviced regularly to make sure it sustains peak performance. An Epiroc service solution offers peace of mind, maximizing availability and performance throughout the lifetime of your equipment. We focus on safety, productivity and reliability.

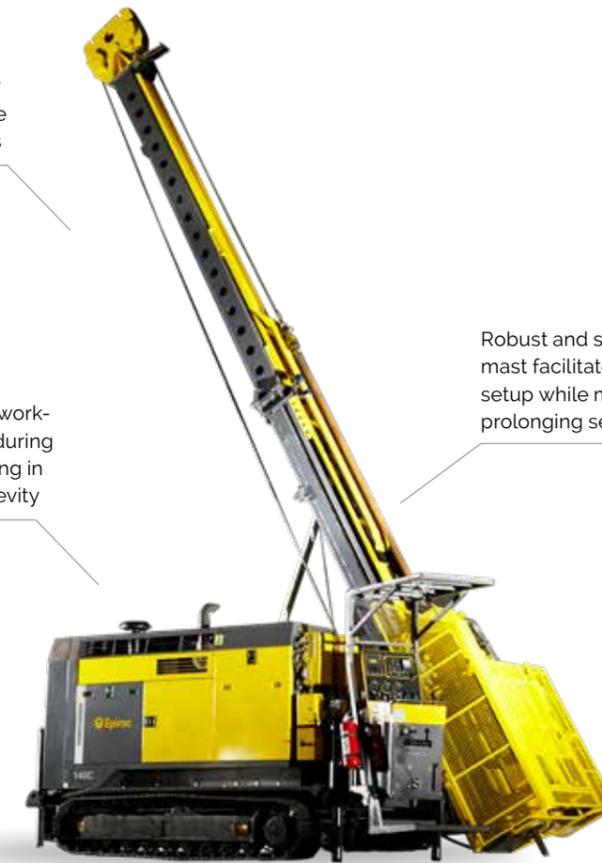
By combining genuine parts and an Epiroc service from our certified technicians, we safeguard your productivity – wherever you are.

## Technical specifications

Improved robustness of the crown block with steel shieves and larger wireline pullies extends the service life of both the wire and the pullies

Improved hose routing makes the working environment safer and neater during operation. Wear is reduced, resulting in improved hose reliability and longevity

Robust and sturdy hinges on the mast facilitate easy transport and setup while minimizing wear and prolonging service life



### Depth capacity

Hole size	Standard drill rods		Thin wall drill rods	
	Metric	US	Metric	US
B	1 536 m	5 039 ft	1 824 m	5 984 ft
N	1 211 m	3 973 ft	1 381 m	4 531 ft
H	804 m	2 638 ft	1 100 m	3 609 ft
P	491 m	1 611 ft	770 m	2 526 ft

These figures serve as guidelines only. They are calculated with available pull force from main winch, weight of drill string in water filled hole and average WOB. Epiroc cannot guarantee these capacities will be reached in all working conditions due to varying factors such as ITH used, conditions of the ground and differences in operation.

### Rotation unit

Power	Hydraulic motor - variable speed/reversible
Final drive	Gear driven
Spindle (inner diameter)	124 mm (4.88 in)
Max torque	7 600 Nm (5 605 ft lb)
Max speed	1 300 rpm
Gear change	Hydraulic shift

### Spindle data

Spindle	Ratio	Speed	Torque
Low speed	17.5:1	50–200 rpm	7 600–3 370 Nm (5 605–2 486 ft lb)
High speed	2.7:1	350–1 300 rpm	1 195–530 Nm (881–391 ft lb)

### Foldable Mast and feed system

Feed travel	3.5 m (11.5 ft)
Feed speeds	High and Low with variable control
Mast dump travel	1.2 m (3.9 ft)
Thrust	59.6 kN (13 390 lbs)
Pull	138 kN (31 020 lbs)
Drilling angle	45°–90°
Rod pull length	6m (20 ft)

### Rod holder

Hydraulic open, gas spring closed - BO to PO rods	
Max diameter	140 mm (5.5 in)
Holding capacity	130 kN (28 660 lbs)

### Power unit

Manufacture	Cummins
Model	QSB 6.7 IIIA-3/IV-4F
Volume	6.7 liter, 6 cyl
Power	Stage IIIA/Tier 3: 153 kW (205 hp) / Stage IV/Tier 4F: 160 kW (215 hp)
RPM	1 800
Engine type	Diesel turbocharged and charged air cooled
Cooling system	Water
Electrical system	24V (Alternator 24 V, 70 Amp)
Sound level	108 dB(A)

### Chuck assembly

Type	Hydraulic open, spring close
Max clamping diameter	124 mm (4.88 in)
Holding capacity	178 kN (40 000 lbs)

# Technical specifications

## Main hoist

Single line capacity, bare drum	80 kN (18 000 lbs)
Line speed, bare drum	44 m/min (148 ft/min)
Cable size	29 m (89 ft) x 16 mm (10/16 in)

## Wireline hoist

Capacity	2 000 m (6 561 ft) of 4.76 mm (3/16 in)
Line pull	Bare drum: 13 kN (2 922 lb), full drum: 3.7 kN (832 lb)
Line speed:	Bare drum 130 m/min (427 ft/min) Full drum 420 m/min (1 378 ft/min)

## Drill base supports

Trailer mounted rig with four wheels (215/75R17.5) and towing package	
Support	4 hydraulic jack legs to adjust rig height
Pad diameter	230 mm at mast and 200 mm at towbar side
Leg adjust range	550 mm
Crawler mounted rig on crawler tracks	
Crawler band width	400 mm (15.7 in)
Crawler ground pressure	9.5/ 65 kPa
Radio control tramping speed (max)	2.1 km/h
Support	4 hydraulic jack legs to adjust rig height
Pad diameter	230 mm at mast and 200 mm at towbar side
Leg adjust range	550 mm

## Water pump

Model	Trido 140H
Flow	140 L/min (37 gal/min)
Pressure	68.95 bar (1 000 psi)

## Hydraulic system

Primary pump	28 MPa- 240 L/min (4 061 psi, 64 gal/min)
Secondary pump	21.5 MPa-123 L/min (3 118 psi-32.2 gal/min)
Auxiliary pump	20 MPa-77 L/min (2 901 psi-21 gal/min)
Hydraulic oil cooling	Air

## Control panel – pilot controlled

Joystick for making & breaking	Make up and drilling torque limitation
Auto thread compensation	Constant penetration rate knob
Rotation Unit Gear indicator	Emergency stop
Penetration rate cm/min and in/min	Water flow and pressure
Feed force and hold back in kN/lbp	LED screen lightning
Engine information display	Electric water flow meter
Wireline counter	Units displayed in imperial or metric

## Optional equipment

High altitude kit, to achieve max capacity when drilling above 3 000 m.

## Working Dimensions

Dimension	Trailer version		Crawler version	
	Metric	US	Metric	US
A	8 979 mm	354'	8 979 mm	354'
B	12 155 mm	478"	12 155 mm	478"
C	9 429 mm	371'	9 429 mm	371'
D	2 695 mm	106"	2 895 mm	114'

## Weight

Trailer	11 000 kg (24 251 lbs)
Crawler	13 000 kg (28 660 lbs)

## Transport dimensions

Dimension	Trailer version		Crawler version	
	Metric	US	Metric	US
D	2 700 mm	106"	2 895 mm	114'
E	2 290 mm	90"	2 600 mm	102"
F	2 505 mm	99"	2 558 mm	101"
G	215 mm	8.5"	400 mm	15.8"
H	599 mm	24"	536 mm	21"
I	8 327 mm	328"	6 636 mm	261"
J	432 mm	17"	-	-
K	1 044 mm	41"	-	-

## Standard equipment

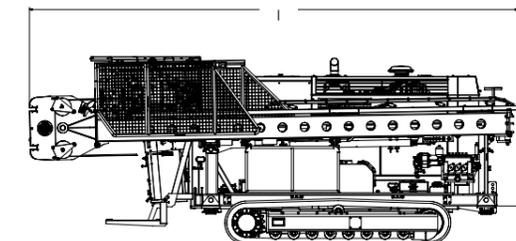
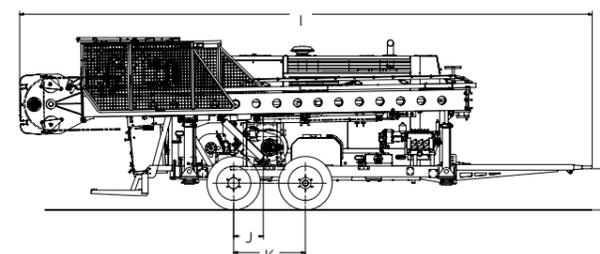
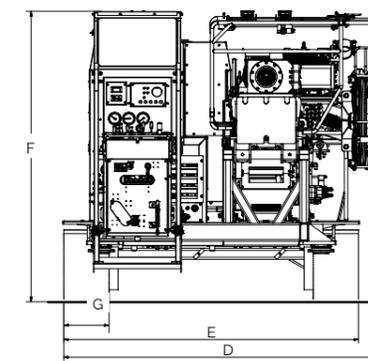
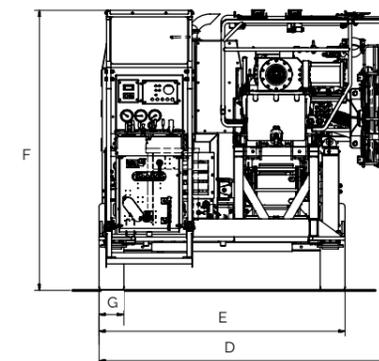
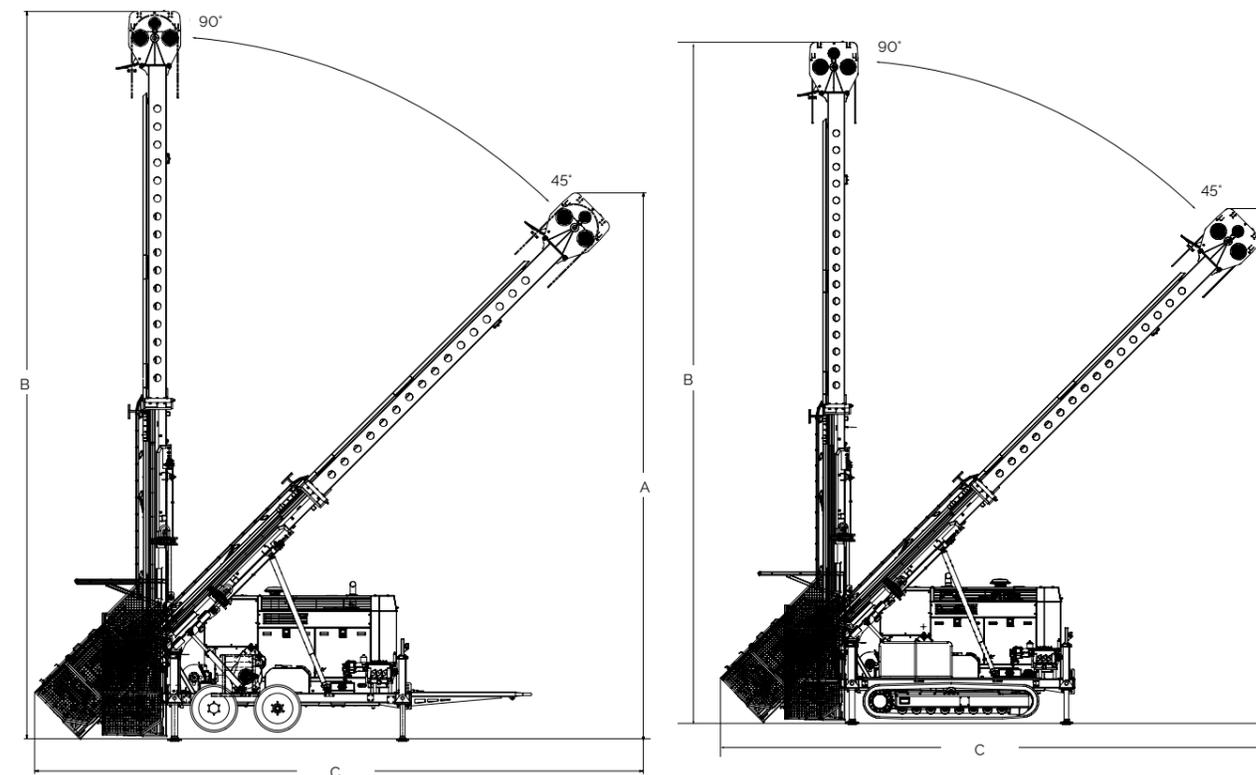
Hydraulic mast dump	Hydraulic PW-size rod holder
Mast in two sections	4 hydraulic levelling jacks
Large crown sheave wheel	Towing package
Ware lines on lower mast	Fuel filter & water separator
Safety guards with inter-lock	Hydraulic mast raise
Hydraulic oil reservoir Electric fill pump	Trido water pump
Hydraulic Mud mixer	Tachometer
Hydraulic oil tank volume (100 liters)	Lighting kit
Diesel tank volume (200 liters)	Crawler tracks (Christensen 140C)
Radio remote control (Christensen 140C)	Wireline winch with level wind, depth indicator and parking brake

## Sound\*

	Tier 3	Tier 4 Final
A-weighted Sound Power Level, LwA	108 dB	105 dB
	Tier 3	Tier 4 Final
A-weighted sound pressure level, LpA, calculated (4 m distance from rig)	160 m	74 dB

\*The declared noise emission values should be combined with a measurement uncertainty of KpA-3 dB. The sum of declared measured value and the uncertainty value represent an upper limit of the range, in which measured values are likely to be included. The values were determined in accordance with the standards ISO 3744:2010 (for sound power level estimation) and ISO 11203:1995 (for sound pressure calculation at different distances from the rig).

# Technical specifications



# Minimise on-site danger

The Christensen Rod Handler System (RHS) is available as an option for both the Christensen 140 and Christensen CT20 surface core drilling rigs.

Safety is always a top concern and sometimes surface core drilling can be challenging in terms of operator safety. This is why we developed the Rod Handling System. The Christensen RHS enables hands-free rod tripping throughout the drilling cycle, which means there is no need to manually add or remove rods by hand. Secondly, thanks to hands-free rod tripping

the operator assistant is able to handle the assistant control panel instead of manually adding the rods. This means less fatigue for the operator assistant. Lastly, safety is further improved by reducing the amount of injuries during the rod loading process. This is achieved thanks to not having to manually add rods when threading.



## ⊕ Main benefits

**Hands-free rod tripping** throughout the drilling cycle

**Less fatigue** for the operator assistant

**Minimise injuries** during the rod-loading process



**Technical data**

Main application area	Core drilling
Drilling method	Wireline drilling
Rod rack capacity	B - 25 rods, N - 20 rods, H - 15 rods, P - 11 rods
Powered by	Rig auxiliary hydraulic
Transport dimensions	8 250 x 1 700 x 2 150 mm
Weight	2 500 kg

**Working dimensions**

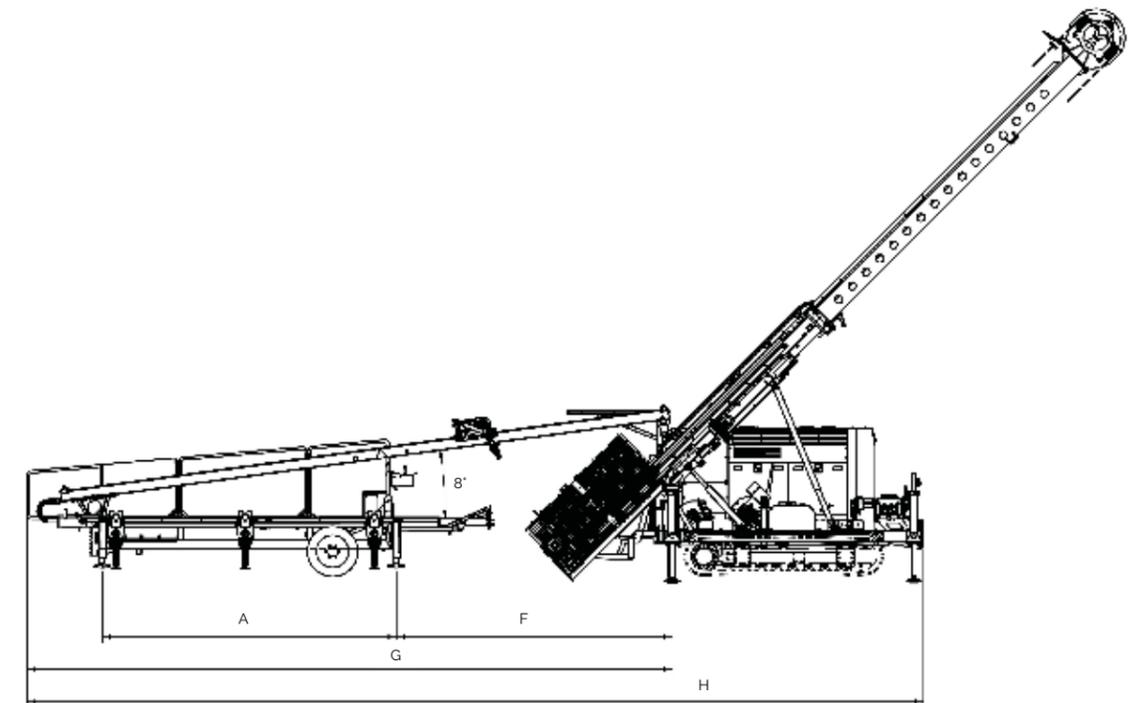
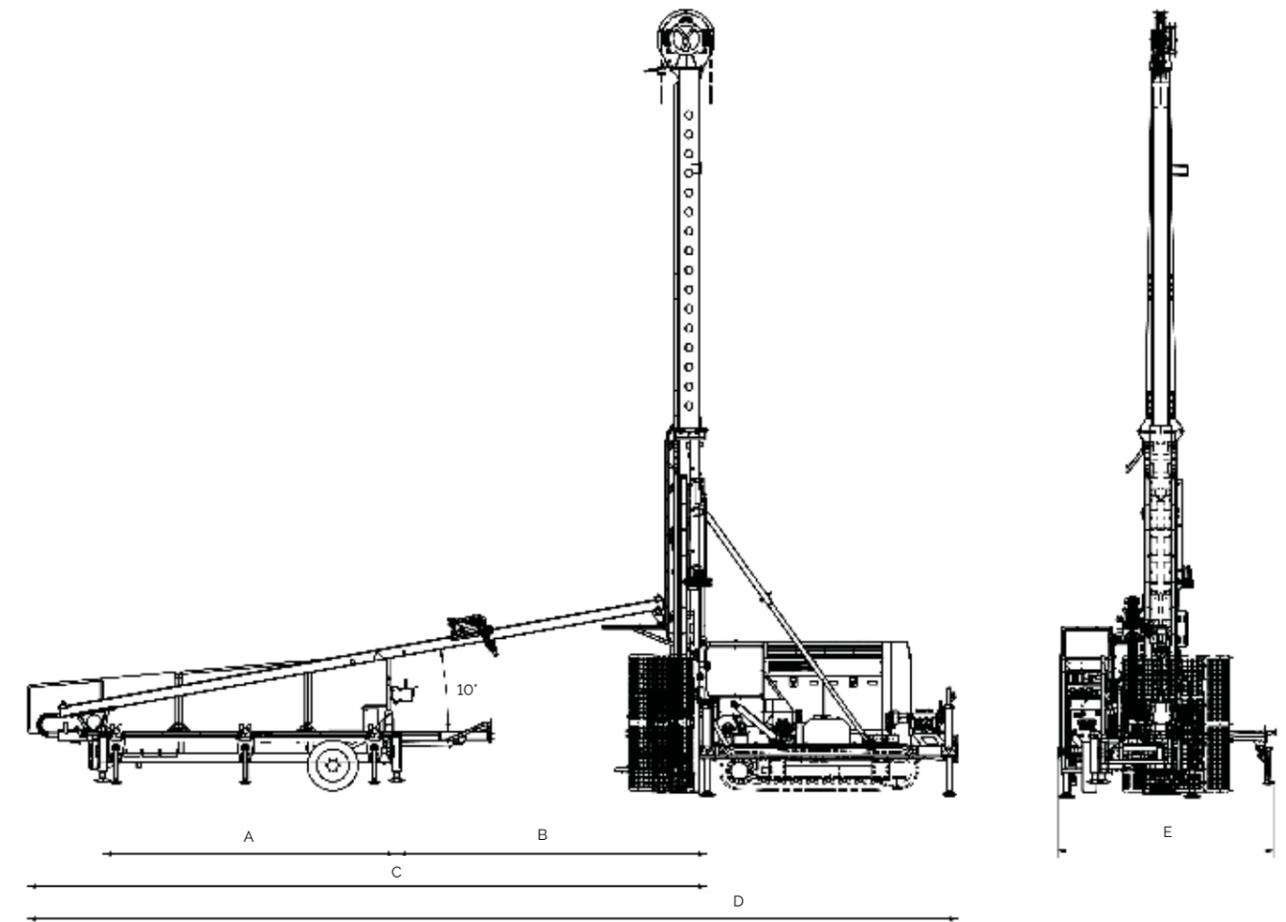
Dimension	Metric	US
A	4 554 mm	14.9 ft
B	4 809 mm	15.8 ft
C	10 530 mm	34.5 ft
D	14 415 mm	47.3 ft
E	3 331 mm	10.9 ft
F	4 270 mm	14.0 ft
G	9 991 mm	32.8 ft
H	13 876 mm	45.5 ft

**Technical data**

Handles 3 meter and 6 meter drill rod
Rod size - B, N, H and P
Can handle WL casings
Handles the complete core barrel as well as inner tube
Drilling angles from 45° to 90°
CE certified (EN 16228)

**Transport dimensions**

Dimension	Metric	US
Length	8 250 mm	27.1 ft
Width	2 150 mm	7.1 ft
Height	1 700 mm	5.6 ft



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