Atlas Copco Exploration Products

Christensen core drilling rigs

Sustainable Productivity
Christensen exploration drilling rigs – user-friendly, durable technology for high productivity
Five flexible Christensen rigs
Over the years, surface exploration drilling has become synonymous with Christensen drilling rigs. Their simplicity and ingenuity has made them market leaders and today they can be found in nearly every corner of the world.

The current range consists of five models
There is a comprehensive range of Christensen core drilling rigs to suit the variety of surface core drilling operations. The range strain from the smallest rig that is a compact and manovrable trailer-mounted drilling rig to larger trailer/crawler and truck mounted rigs. The largest and most powerful Christensen rig is truck-mounted and ideal for deep hole drilling.

Christensen rigs can be found anywhere
One of the fundamental benefits of the Christensen rigs is that they are at home in almost any environment. Whether you are looking for minerals in Canada or in the outback of Australia these rigs will just keep on drilling until the job’s finished. This is all down to the field proven components and reliable technology.

And thanks to the trailer, crawler and truck versions they can be easily transported to the site of your choice.

Reliable, robust and highly productive
Tried and tested for many years, Christensen rigs have proven their reliability. The backbones of these rigs are the strong Atlas Copco designed rotation units, that are made to withstand any eventuality while keeping the rig running efficiently. Together with the well proven components, such as the main hoist and feed system, drilling can be carried out with the minimum of downtime - day in, day out.

Simplicity and user-friendliness
Working in some of the most isolated parts of the world, an operator needs to be sure that his rig is easy to use and simple to maintain. This is where Christensen rigs are outstanding. Solutions such as the hydraulic jacks that facilitate rapid rig positioning. Robust components, including the separate hydraulic oil cooler and rod holder, ensure reliability. The user-friendly control panel offers the operator a comprehensive view of the drilling rig while also keeping the elements at bay.

Sustainable, safe and user-friendly
Atlas Copco is committed to sustainable productivity. This has been shown in our efforts to choose engines that minimise emissions as well as make core drilling rigs and equipment as safe and user-friendly as possible without causing detrimental effects on the environment. For example, the rotation units and other moving parts are protected by metal mesh guards. There are two emergency stop buttons. Extra working lights for night work are standard as are thread compensation for safer rod changes. In fact, Christensen CS10, CS14, CT14 and CT20 surpass the rigorous standards laid down by the European safety organization.

Exploration drilling companies are constantly looking for ways to increase productivity and reduce costs. Thanks to Atlas Copco’s commitment to sustainable productivity, we can match these needs by continuously developing our exploration drilling rigs. Christensen surface core drilling rigs are an example of these efforts.
The Christensen P4 core drilling rig is the smallest Christensen drilling rig and has been designed to be as simple and robust as possible. The P4 rig is used very successfully in a “fly-version” where the rig is disassembled into major components to make transportation by helicopter possible. With this approach the reliable and simple and light weight design suits these drill applications perfectly. With the same rotation unit as the other Christensen rigs the P4 rig is capable of drilling P-size rods and has what it takes to reach the targeted depth.

This model has proven itself over and over again to be a reliable, strong and productive rig that is easy to operate in all kinds of conditions and areas, including extremely remote places – this is a rig to rely on.

**Basic data**

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<th>Feature</th>
<th>Value</th>
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<tr>
<td>Depth capacity (NO)</td>
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</tr>
<tr>
<td>Drill rod size, wire line</td>
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Christensen CS10 core drilling rig is sharing many of the components with Christensen CS14, this trailer-bound drilling rig has a robust long mast that is split-able into three sections. This makes the drilling rig easy to transport between work sites while the compact size allows it to be transported into difficult terrain. Christensen CS10 features a long, robust mast with hydraulic mast raise. The modern feed system, strong rod holder and the high capacity rotation unit ensures productive drilling.

The CS10 rig has a drill capacity of 800 m*, this flexible drilling rig can handle up to 6 m core barrels. And thanks to robust hydraulic legs the rig is kept firmly in place during drilling.

**Basic data**

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<td>Rod pull length</td>
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Together the Christensen CS14 and CT14 represent the most flexible drilling rig size in the Christensen range. Sharing the same drill capacity of 1200 m* and the powerful feed system, main winch and Tier 3 low emission engine to handle efficient deep drilling, these two models are differentiated by the mode of transport - the CS14 being available as trailer-mounted or crawler-mounted, while the CT14 is for truck mounting.

Both CS14 and CT14 comes loaded with features that often are optional on other rigs. So irrespectively where you are drilling there is a model 14 to fit the bill.

<table>
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<tr>
<td>Rod pull length</td>
<td>6 m (20 ft)</td>
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</tbody>
</table>

*N-sized ITH
The newest Christensen core drilling rig – CT20 is the most powerful rig in the range and yet easy to operate. This rig has a new feed system that will further enhance the high productivity that is one of the key characteristics for Christensen rigs, the CT20 have the drill capacity of 2450 m*. The newly designed control panel is very easy to use with it's many automated functions. The rig also have a new safety level built in to the rig, directly from the factory.

The work environment around the rig has been in consideration during the development process. The rig is equipped with a sound reduced engine canopy. In order to control carbon-emissions, the rig is also equipped with a modern Tier III engine and it has oil spill plates underneath the power pack.

### Basic data

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<td>Lift capacity, feed</td>
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<tr>
<td>Rod pull length</td>
<td>6 / 9 m 20 / 30 ft</td>
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</table>

*N-sized ITH
A multitude of features that make the difference

The mast and feed frame
Christensen masts are exceedingly robust, carrying the full weight of the drillstring with capacity to spare. The integrated feed frame is 1.8 or 3.5 m long. With the possibility of using rods up to 6 / 9 m in length, high productive rod tripping is achieved. All rigs are equipped with a easy to use rod positioner.

Main hoist and wire-line system
Atlas Copco has consciously chosen to use field-proven solutions for their Christensen drilling rigs. That’s why a main wire hoist is used as the rod retrieval system and a wire-line system for core removal. The main hoists are dimensioned to handle the total rod weight* at the maximum drilling capacity.

Rotation unit
Rotation units are the muscles of a drilling rig. Nearly all Christensen rigs use the same size of unit, with exception of the Christensen CT20. Thanks to the four-speed gearbox, the rotation units offer an extremely wide range of speeds and torque. The chuck is spring loaded and hydraulically opened. And with the ingenious design of the chuck, rods can be easily centred.

Diesel engines
Christensen drilling rigs use Tier III emission engines. In US and EU the rigs are equipped with engines that full-fill the latest EPA emission standards. This helps to minimize the rig’s carbon footprint while contributing to lower fuel consumption and lower running costs.

Separate hydraulic oil cooler
Keeping cool is not easy when you’re drilling for core samples at ambient temperatures of 50°C. That’s why Christensen rigs are equipped with a separate oil cooler as standard. This unique feature is mounted away from the engine and facilitates efficient cooling of the hydraulic oil.

Flush pumps
Atlas Copco opts for Trido flush pumps for Christensen drilling rigs. These robust, well-dimensioned pumps make sure the right amount of water is pumped into the hole at the right pressure. It also facilitates cuttings and mud removal, cooling and stabilization of the hole.

* Water-filled holes.
**Rod holder**
Placed at the base of the feed frame, the rod holder uses the latest in gas spring technology. A gas cartridge ensures high clamping force while the machine’s hydraulics open the holder. This safety measure means the rod is always clamped in place when the drilling rig is shutdown. This extremely reliable holder has a seal life of 1,000,000 cycles and is easily serviced or replaced. For extra safety, the gas pressure can be monitored from the rig’s control panel. Furthermore, as it features fewer parts than competing systems, you’re looking at a lot less maintenance. (Optional on P4).

**Hydraulic jacks and mast dump**
Getting a rig into position ready for drilling can be time consuming. But that’s not a problem for a Christensen drilling rig. Once in place the integrated hydraulic jacks are lowered to stabilise the rig. Then the mast is raised into position while the mast dump slides the feed frame into place (not Christensen CS10). Finally the whole rig chassis is lowered into the ideal drilling position by the hydraulic jacks.

**Control panel**
In these tough drilling conditions it’s paramount that the rig’s controls work perfectly. That’s why Christensen rigs are equipped with a user-friendly control panel that protects against the elements. Placed at the back of the drilling rig, the control panel is mounted on a platform that facilitates an excellent overview of the drill and work site. The truck-mounted version can be adjusted with the aid of a hydraulic ram.
Core drilling bits
Atlas Copco has dedicated years to developing and manufacturing exploration core bit designs. We offer diamond impregnated, diamond surface set, tungsten carbide and PDC bits. These are available from in diameter (imperial) A to S, or (metric) 46 to 146 mm and operate in everything from soft, unconsolidated to extremely hard and abrasive rock conditions.

Core barrels
Retrieving superior core samples is the very essence of the drilling operation. That’s why we have a full range of wire line and conventional core barrels in the most commonly used designs.

Drill rods
Our standard conventional friction welded and wire line drill rods are manufactured from high quality steel. This ensures excellent abrasive resistance and long service life.

Lightweight composite and aluminum drill rod systems are also available for deep hole conventional core drilling.

Atlas Copco - your partner in exploration drilling
Atlas Copco has a long tradition of supplying exploration drilling contractors with a wide range of tools and services.

We are able to supply all that is needed for drilling in all underground and surface exploration applications. This includes drilling rigs and a full range of high tech and high quality products such as drill rods, core barrels, core drilling bits and casings. Last but not least, the extensive support, parts and service needed to get the most out of your investment is always close at hand.

Only Atlas Copco can deliver such a unique in-house turnkey solution for your drilling operation. We are committed to prove our reputation as a leading supplier of exploration drilling solutions. We believe in interaction in the field with our customers and enjoy sharing and exchanging know-how and experience. Welcome to join us!
**Christesen Care Service agreement**

The best measurement of your core drilling investment is cost per meter core. To keep a low cost per meter and increase your profit and growth, your equipment needs maintenance. Our new service agreement, Christensen Care, consists of five valuable parts:

- Scheduled service
- Inspection protocols
- Application knowledge
- Extended warranty
- Satellite monitoring

Together they will increase your productivity and make your equipment last longer.

Christensen Care is customized for:

- Getting more core in the box
- Achieving better cost control
- Give you peace of mind
- Remote access and planned service

Through inspections and scheduled service, Christensen Care focuses on preventing drilling interruptions and minimizing the risk for unforeseen repairs. With Christensen Care in mind you will be able to keep a high availability on your machine and with the extended warranty you will have better possibilities to control your cost of operation.