



HCR Series

FRD Furukawa reserves right to change specifications without prior notice.

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ISO9001 ISO14001
Takasaki, Yoshii Works
Certified Management System



HCR1500-ED II -E1206-F4
Printed in Japan



Hydraulic Crawler Drill

HCR1500-ED II

Tier3 / Euro Stage - 3



FRD FURUKAWA ROCK DRILL

The ultimate combination of performance and economy

HCR1500-ED II

*With the field proven HD700 series drifter and IDS,
it's easier than ever before to drill FAST & STRAIGHT.*

★ The key for market leading drilling performance

IDS : Integrated Drilling System

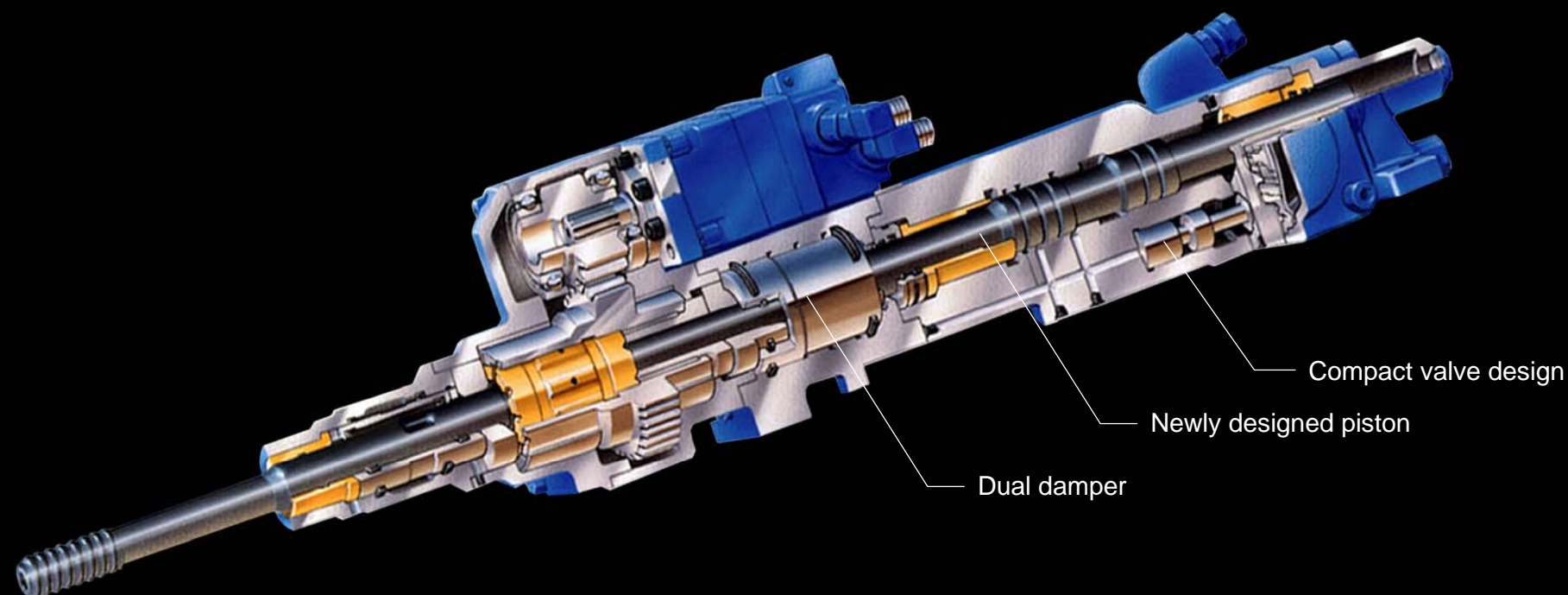
DDS : Dual Damper System

★ Newly designed economy mode

★ Eco friendly engine



*Drilling performer, HCR1500-ED **II***
High-productivity & Durability
Drill faster and straighter with our patented HD715 drifter.



Dual-damper system **DDS**

FRD has developed the Dual-Damper System, a first in the industry. For maximum energy transfer, active DDS minimizes return of shock waves by keeping the bit firmly against the rock at all times during drilling. Active DDS minimizes percussion energy loss and by optimizing the overall feed force, greatly improves the life of drilling accessories. An additional benefit is greatly improved life of drilling accessories.

(U.S. PATENT No.5,896,937)

Compact valve design

The FURUKAWA HD700 series drifter is designed to minimize drill noise and vibration without sacrificing performance. Incorporating a new piston design, the HD715 drifter maximizes energy transmission and drills effectively in a variety of rock types.

Reverse percussion system

The Reverse Percussion System (RPS) makes it easier to free a stuck rod. A substantial increase in extraction force allows the field proven RPS (optional) to remove struck rods quickly.



HCR1500-ED **II**



Integrated Drilling System

IDS : All-hydraulic drilling controls allow for automatic adjustment of impact force and feed force to match changing of rock formations. IDS-2 as optional device, is monitoring rock conditions and automatically adjust feed speed. Dual-Damper System provides maximum impact energy transfer, and minimizes energy of return shock wave. Working together, these integrated systems are the keys to highest-possible drilling performance at low running cost.

Maximizes operator performance with the ultimate in drilling technology.



Powerful CAT engine is fully compliant with TIRE3 / Euro stage-3 emission control. It gives full control for easy drilling.

Low-emission engine

Thanks to advanced hydraulic and pneumatic technology, output energy can be transferred to each component with minimum power loss. These systems support high productivity.



CAUTION
The diesel fuel quality greatly affects the performance and life of the engine. Use only clean, high quality fuel.



Digital engine indicator
Easy check engine condition in the Cab.
● Engine rpm
● Engine hour meter
● Engine coolant temp
● Engine oil pressure etc.



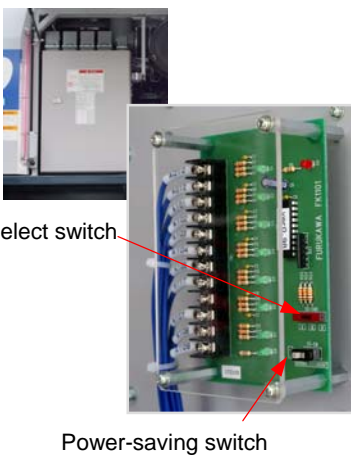
Engine throttle control
Adjust the engine speed.
Position I : 1,250 min⁻¹
Position II : 1,600 min⁻¹
Position III : 1,800 min⁻¹
Position IV : 2,000 min⁻¹
Position V : 2,200 min⁻¹

Newly designed economy mode

By using power-saving switch, fuel consumption is reduced during “light” work conditions. (Maximum 30 % reduction on previous models.)
While drilling, Engine speed can be adjusted lower than power mode.
Engine speed can be selected from one of following speed.

“Light” work 1,600 min⁻¹
↑
According to rock condition 1,800 min⁻¹
↓
“Hard” work 2,000 min⁻¹
2,200 min⁻¹

New economy mode
(Have a choice from 3 types of power)
Power mode
(Previous model has only this mode for drilling)



For the hole cleaning, Engine speed automatically increases up 2,200 min⁻¹.
As a result, even in economy mode, you can realize the perfect cleaning as power mode does.

Meter panel



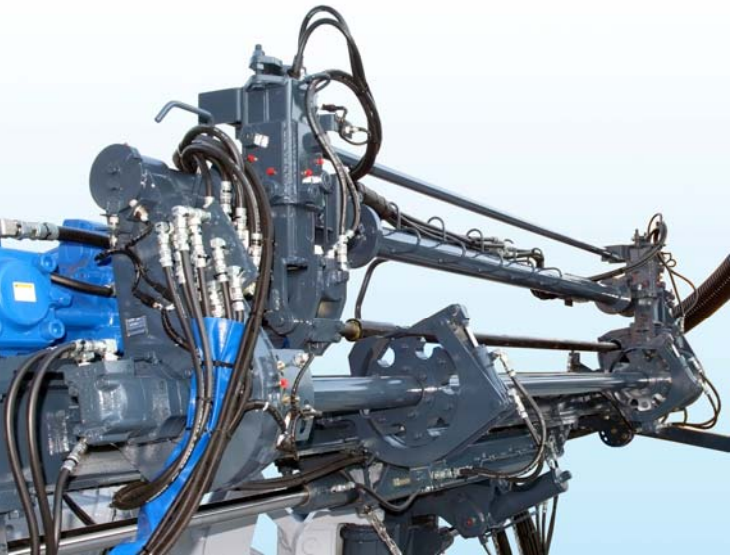
- Engine Diagnostic Monitor
- Engine fault lamp
- Engine diagnostic lamp
- Warning lights
- Alternator (charge)
- Hydraulic oil level
- Hydraulic Temperature (High)
- Compressor overheat
- Hydraulic oil temperature (Low)
- Hydraulic oil filter
- Air cleaner
- Compressor oil filter
- alarm

Engine Fault
The warning lamp indicates a serious malfunction in the engine.
Engine Diagnosis
This alert indicator is used to indicate the existence of active fault in the engine with flashing codes.

Drilling position indicator

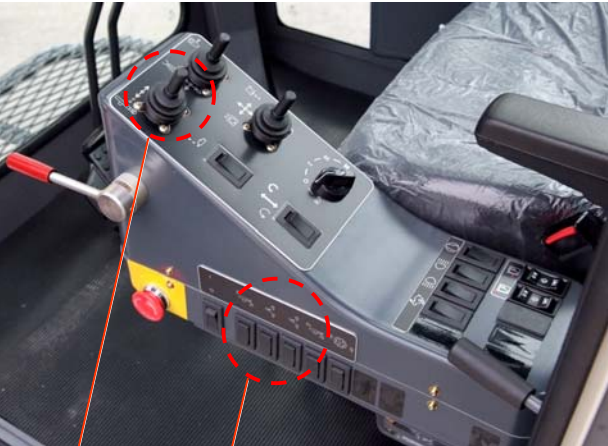
- Normal forward position
- Fast forward position
- Normal backward position
- Fast backward position
- Normal rotation position
- Reverse rotation position
- Collaring position
- Regular drilling position

Easy handling rod changer



Permits the operator to add and withdraw rods using a single lever, and to select which rods in the rack to use, thereby spreading the wear evenly among all the rods in the rack and helping to reduce costs.

Rod changer control lever



- Rod changer adjusting panel
- 1 Manual / Auto selector switch
 - 2 Swing switch
 - 3 Clamp(F) switch
 - 4 Clamp(R) switch
 - 5 Slide switch
 - 6 Rotating switch

Easy operation and improved - reliability

HCR1500-ED II



High capacity compressor & Dust collector

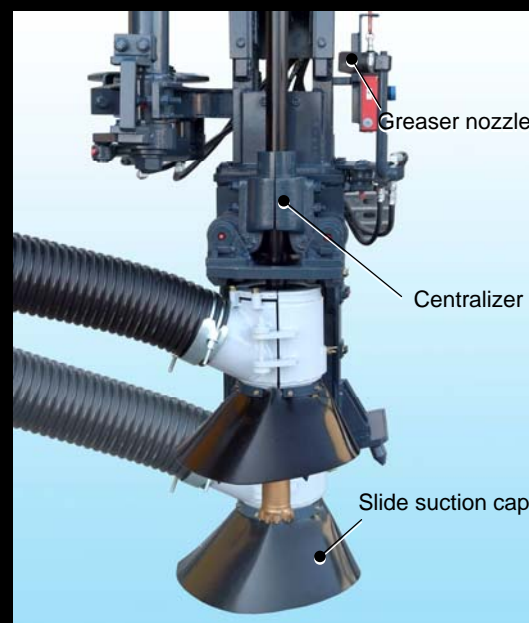
High out-put compressor increases flushing air, provides faster drilling and decreases bit wear. The upgraded dust collector has a suction capacity. The dust collector includes an effective pre-cleaner to reduce the escape available for difficult drilling conditions.



Dust collector



Pre-cleaner



Greaser nozzle

Centralizer

Slide suction cap

Easy to check hole

Sliding suction cap can be raised to allow a fast visual check of operation.

Left side control box



- ① Rod changer control lever
- ② Air flushing lever
- ③ Greasing switch
- ④ Hood & Centralizer switch
- ⑤ Mode selector switch
- ⑥ Anti-jamming switch
- ⑦ Traveling speed switch
- ⑧ Headlight switch
- ⑨ Rear work light switch
- ⑩ Compressor starting switch
- ⑪ Front wiper switch
- ⑫ Roof wiper switch
- ⑬ Safety lock lever
- ⑭ Emergency stop switch
- ⑮ Door unlock lever

Anti-jamming device

An anti-jamming device optimizes the drilling condition for a variety of rock types, thus offering extended bit and rod life, and consequent reduction in running cost.



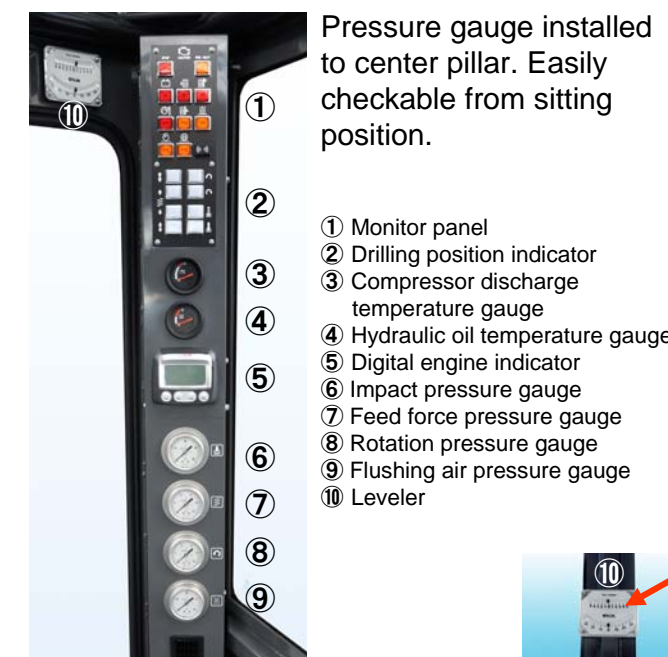
Mode selector

A mode switching hydraulic circuit performs switching between N mode for homogeneous rocks and H mode for hard rocks, thus enabling safe and speedy drilling.



Pillar mounted gauges

Pressure gauge installed to center pillar. Easily checkable from sitting position.

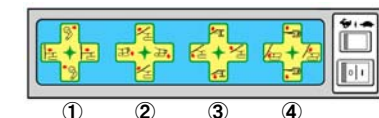


- ① Monitor panel
- ② Drilling position indicator
- ③ Compressor discharge temperature gauge
- ④ Hydraulic oil temperature gauge
- ⑤ Digital engine indicator
- ⑥ Impact pressure gauge
- ⑦ Feed force pressure gauge
- ⑧ Rotation pressure gauge
- ⑨ Flushing air pressure gauge
- ⑩ Leveler

Right side control box



- ① Joystick drilling lever
- ② Horn switch
- ③ Feed speed adjusting control dial
- ④ Feed pressure adjusting control dial
- ⑤ Hydraulic cylinder control panel



- ⑤ 2 boom speed
- ⑥ Operating speed selector

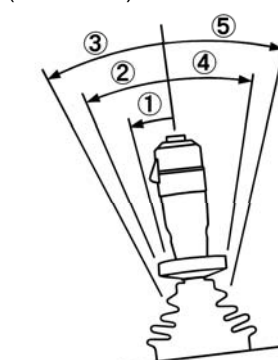
- ① Boom slide / Guide rotary (if equipped)
- ② Oscillating / Guide slide
- ③ Guide tilt / Guide swing
- ④ Boom lift / Boom swing

- ⑥ Indicator switch
- ⑦ Collaring pressure adjusting dial
- ⑧ Regular drilling pressure adjusting dial
- ⑨ Rod revolutions adjusting dial
- ⑩ Air conditioner control panel
- ⑪ Engine throttle switch
- ⑫ Starter switch
- ⑬ Drink holder

Joystick operation

A single multi-function lever controls all the drilling functions.

Pull-Drilling Specification (standard)



- ① Impact (collaring) and feed forward position
- ② Impact (regular drilling) and feed forward position
- ③ Feed forward position (fast)
- ④ Feed backward position
- ⑤ Feed backward position (fast)



Normal rotation

Reverse rotation

Impact switch

Maneuverability, Safety & Visibility



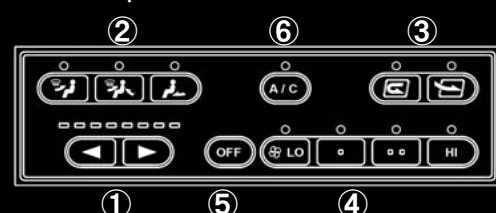
Comfortable cab

1100 mm wide cab provides large windows at the front and on the right side maximize operator visibility. Cab is air conditioned and pressurized with filter air to keep out dust.

*ROPS : Roll-Over Protective Structures FOPS : Falling-Object Protective Structures

Air conditioner

Control panel

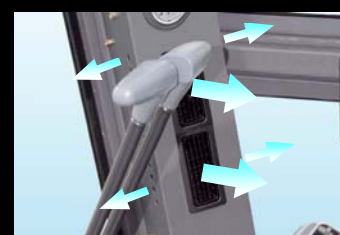


- ① Temperature control switch
- ② Mode selector switch

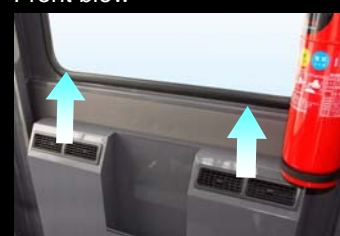


- ③ Internal / external air selector switch
- ④ Fan switch
- ⑤ OFF switch
- ⑥ Air conditioning switch

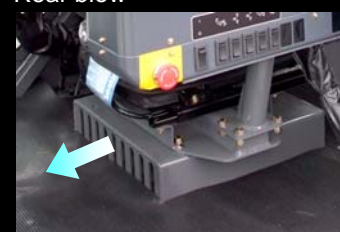
Air-con filter
External air filter



Front blow



Rear blow



Foot blow

Operator seat



Suspension seat

AM/FM radio



Minimizes operator fatigue

HCR1500-EDII

IMS (Intelligent Monitoring System)

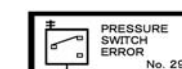


IMS is a multi-display unit. When the engine is started, the machine conditions and operating troubles are indicated on the information display. (optional equipment)

IMS- I

IMS- I I indicates the operating troubles and the maintenance information being required on the information display.

Display



etc

IMS- II

IMS- II displays the information on periodical check and maintenance.

Display



etc

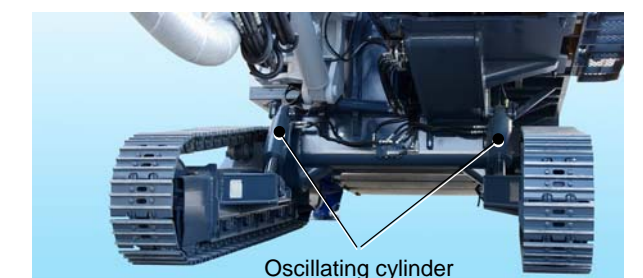
Extension boom

Boom extension length : 900mm
Extension boom increases pattern flexibility.



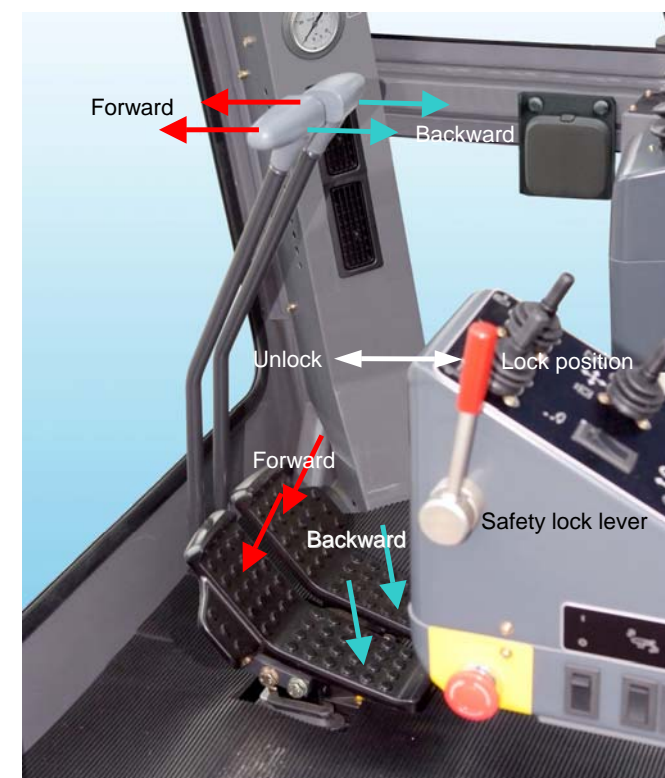
Heavy duty undercarriage & oscillating

Heavy-duty track frames provide strength and durability. One-piece drive sprockets are manufactured with hardened surfaces for longer life. Heavy-duty track links are forged from high-manganese alloy steel, and pins and bushings are induction-hardened. Standard full track guards protect undercarriage, Track tension can be adjusted easily with a grease gun. The entire machine oscillates up-down 7.5 degrees total 15 degree to maintain machine level.



Oscillating cylinder

Travel levers



Safety equipment is provided.



Independent track oscillation provides safe tramming in any time.



without track oscillation

Easy Maintenance & Safety Functions.

HCR1500-EDII

Wear plate



Synthetic wear plates for drifter carriage.

Double hose reels



Extends hose life, ensures longer service life and reduces service load.

Fire extinguisher



Located at rear-right-side of the cab.

Evacuation hammer



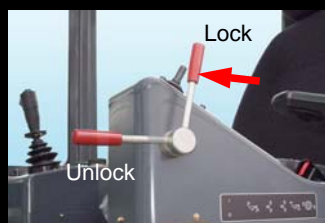
For Safety equipment

Fan guards



Fan guards and belt guards are standard.

Safety lock lever



Stops the traveling function and the function of the drifter's feed operation.

Head guards



Roof is reinforced and overhead window is steel gauge protected.

Emergency stop



Stops the engine in an emergency.

Accessibility for maintenance

All daily maintenance can be performed at ground level. Gas-assisted dampers allow the hinged service doors to be opened easily for access to all required maintenance requirements.

Access to the right side cover

Fully opened access cover makes access to the radiator, the dust collector, the grease can and the drilling control valves easier.



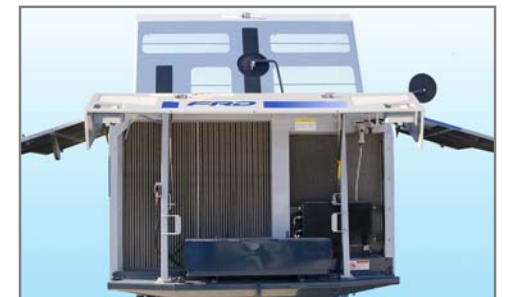
Access to the left side cover

Service for the engine, the electric control panel and the compressor can be made from the left side access cover.



Access to the radiator grille

Services for all the heat-exchangers and the batteries are carried out from the rear access cover. Cleaning of the radiator or the cooler fins can be made from the ground level.



Access to the upper cover

Service for the engine top and the dust collector drive are within the reach.



Hoses and piping clearly accessible for Maintenance



Standard & Optional equipments

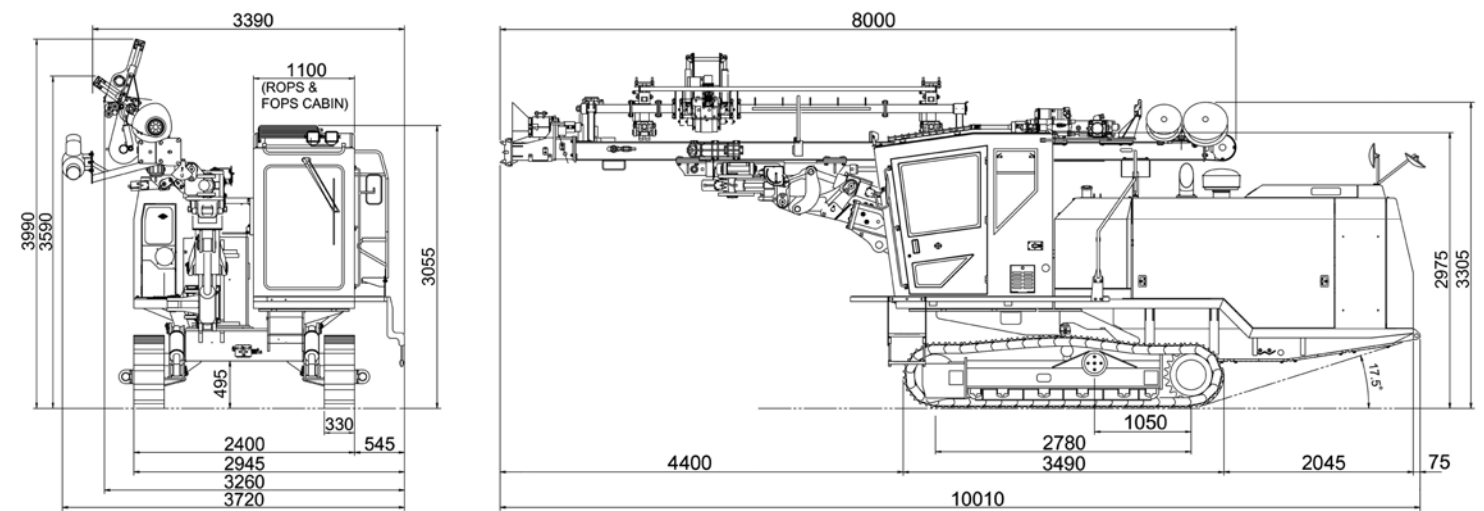
| Unit | | HCR1500-ED II |
|--|-----------|---------------|
| Drifter | | |
| HD715 | | Standard |
| Dual-Damper System | | Standard |
| Reverse Percussion | | Optional |
| Guide shell | | |
| Hydraulic centralizer | | Standard |
| Slidable suction hood | | Standard |
| Open-Close + Slidable suction hood | | Optional |
| Resinous wear plate for carriage | | Standard |
| Rod changer | | |
| Length of rod | 12 ft | Standard |
| Rod size | 45R (T45) | Optional |
| | 51R (T51) | Standard |
| MM / MF rod | | Select |
| Boom | | |
| Extendable boom | | Standard |
| Guide rotary | | Standard |
| Undercarriage | | |
| Triple shoe | | Standard |
| Single shoe | | Optional |
| Lifting eyes for transportation | | Optional |
| Dust collector | | |
| Pre-cleaner | | Standard |
| Folding bracket for pre-cleaner | | Optional |
| Exhaust shutter | | Standard |
| Sinter-Lamellar filter | | Optional |
| Cab | | |
| ROPS/FOPS cab | | Standard |
| Suspension seat | | Standard |
| AM/FM Radio | | Standard |
| Intelligent Monitoring System-1 | | Optional |
| Intelligent Monitoring System-2 | | Optional |
| Side door mirror | | Standard |
| Air conditioner | | Standard |
| Rotating light (Yellow) | | Optional |
| Leveler | | Standard |
| Seat belt | | Standard |
| Rear View Monitoring Camera (Black/white) | | Optional |
| Rear View Monitoring Camera (color) | | Optional |
| Additional lights (70Wx2) | | Optional |
| Catwalk | | Standard |
| Folding Catwalk | | Optional |
| Evacuation hammer | | Standard |
| Control | | |
| Push switch for Boom control | | Standard |
| Lever-operated switch for Boom control | | Optional |
| Joystick control for impact, feed and rotation | | Standard |
| Integrated Drilling System (IDS) | | Standard |
| Active Dual-Damper | | Standard |
| Anti-jamming system for air flow | | Standard |
| Anti-jamming system for air pressure | | Standard |
| Anti-jamming system for rotation pressure | | Standard |
| Joystick controlled rod changer | | Standard |
| Manual over-ride for rod changer | | Standard |
| 2 boom speed | | Standard |
| 2 travelling speed | | Standard |
| Automatic equalizer lock | | Standard |
| Back-up Alarm | | Standard |
| Auto throttle control for impact and air flow | | Standard |
| Others | | |
| Guide tilt angle indicator by pendulum | | Standard |
| Guide swing angle indicator by pendulum | | Optional |
| 2 Dimensional electric angle indicator | | Optional |
| 3 Dimensional electric angle indicator | | Optional |
| 3 Dimensional electric angle indicator with drilling depth and inclination | | Optional |
| Water tank for water injection system | | Optional |
| Emergency shut down system | | Optional |
| Hour meter for engine | | Standard |
| Hour meter for drifter | | Optional |
| Tool box | | Optional |
| Heavy duty under cover | | Optional |
| Ladder for access rear engine cover | | Optional |
| Bumper base | | Optional |
| Water separator for engine | | Standard |
| Pre cleaner for engine | | Standard |
| Auto air release valve for compressor | | Optional |
| Winter package for anti-freeze | | Optional |
| High capacity battery | | Optional |
| Energy-saving mode selector | | Optional |

Specifications

| Model | | | HCR1500-ED II |
|-------------------------------------|--|--|---|
| Weight & Dimensions | | | |
| Operating weight with ROPS/FOPS cab | | | 17,820 kg |
| Overall length | | | 10,010 mm |
| Overall length (transportation) | | | 11,185 mm |
| Overall width | | | 3,720 mm |
| Overall width (transportation) | | | 2,400 mm |
| Overall height | | | 3,325 mm |
| Overall height (transportation) | | | 2,995 mm |
| Drifter | | | |
| Model | | | HD715 |
| Weight | | | 250 kg |
| Impact rate | | | 2,150 min ⁻¹ |
| Number of rotation | | | 0 - 150 min ⁻¹ |
| Undercarriage | | | |
| Track length | | | 3,480 mm |
| Ground contact length | | | 2,780 mm |
| Width of shoe | | | 330 mm |
| Grand clearance | | | 515 mm |
| Oscillating angle | | | ± 7.5° |
| Traveling speed | | | 0 - 4.2 km/h |
| Gradability | | | 57.7% (30°) |
| Engine | | | |
| Make & Model | | | CATERPILLAR® C9 |
| Type | | | Turbocharged and air to air after cooled diesel, direct fuel injection, electric governor |
| Output / speed | | | 261 kW / 2,200 min ⁻¹ Meets Tier-3 and EU stage-3 |
| Fuel tank capacity | | | 630 L (420+210) |
| Hydraulic pump | | | |
| Variable displacement piston pump | | | 2 |
| Gear pump | | | 3 |
| Hydraulic oil tank capacity | | | 240 L |
| Compressor | | | |
| Model | | | PDSF290-S15B (AIRMAN) |
| Type | | | Screw, 1-stage, forced oil lubrication |
| Free air delivery | | | 13.5 m³/min |
| Working air pressure | | | 1.03 MPa |
| Boom | | | |
| Model | | | JE326-142 |
| Type | | | Extendable boom |
| Boom lift angle | | | Up 45° Down 20° |
| Boom swing angle | | | Right 38° Left 7° |
| Boom extension length | | | 900 mm |
| Guide shell | | | |
| Model | | | GH831-41 |
| Length | | | 8,000 mm |
| Feed length | | | 4,700 mm |
| Feed length with R/P | | | 4,520 mm |
| Guide slide length | | | 1,500 mm |
| Guide swing | | | Right 38° Left 38° |
| Guide tilt angle | | | 170° |
| Guide rotary angle | | | 90° |
| Max. rod pull force | | | 31 kN |
| Feed type | | | Hydraulically operated chain drive |
| Dust collector | | | |
| Suction capacity | | | 40 m³/min |
| Number of filter | | | 6 |
| Rod changer | | | |
| Loaded rod capacity | | | 6 |
| Length of rod | | | 3,660 mm (12 ft.) |
| Control lever | | | 1 |
| Rotator | | | Option |
| Bit & Rod | | | |
| Recommended bit diameter | | | 89 - 127 mm |
| Type of bit | | | Cross, Button, Ballistic, Conical |
| Size of rod | | | 45R (T45), 51R (T51) |
| Length of rod | | | 3,660 mm (12 ft.) |
| Starter rod (Max) | | | 4,270 mm (14 ft.) |

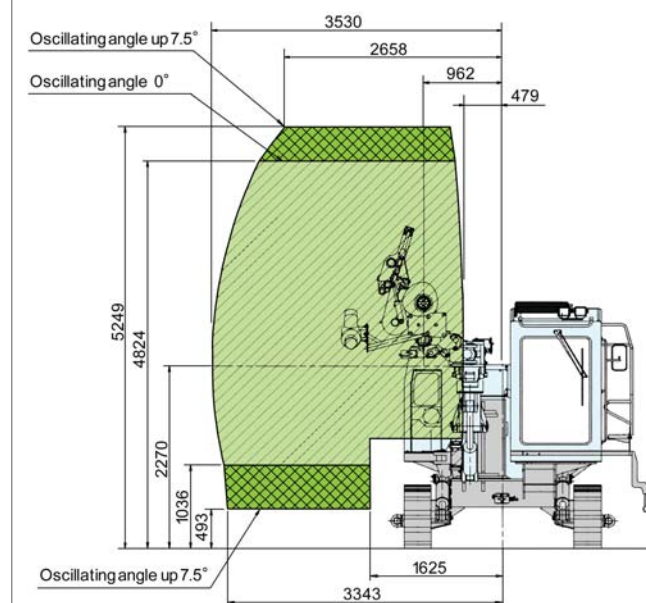
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Dimensions (mm)

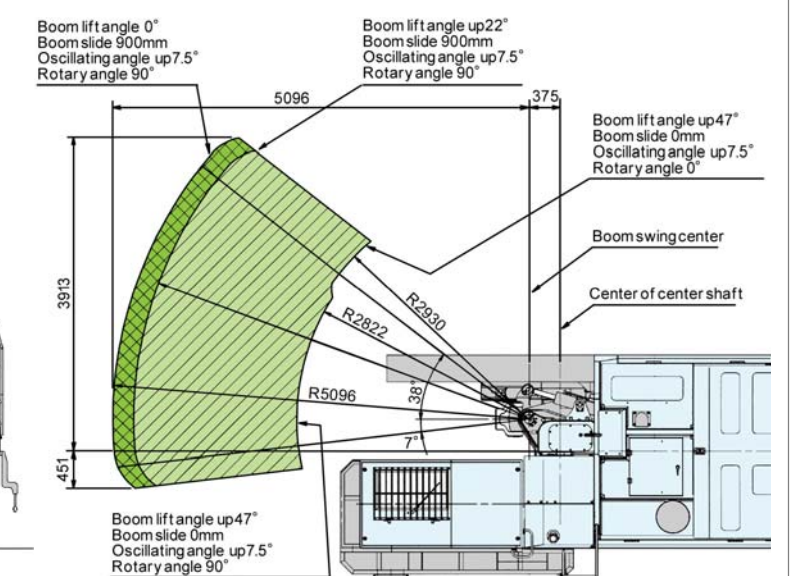


Drilling coverage

Horizontal drilling coverage



Vertical drilling coverage



Optional equipment

