

# Hydraulic Crawler Drill

**HCR1500-ED II**

Tier3 / Euro Stage - 3





# **The ultimate combination of performance**

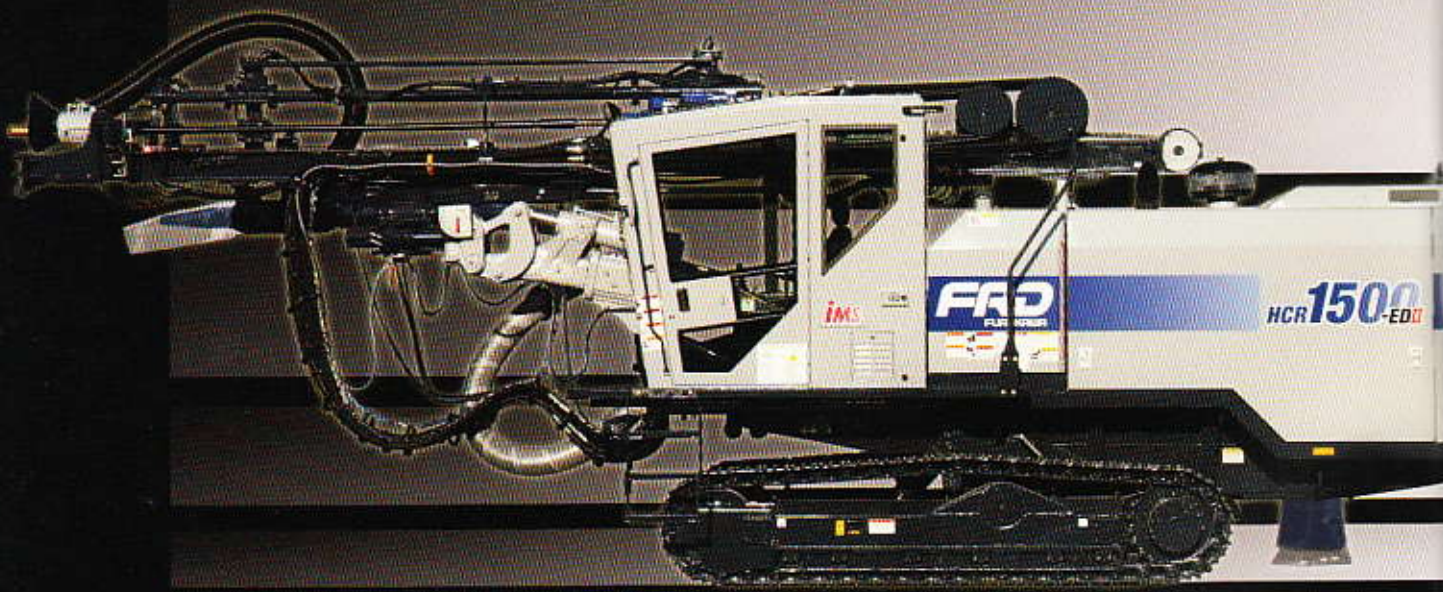
**With the field proven HD700 series drifter and IDS, it's easier than ever before to drill FAST & STRAIGHT.**

**The key for market leading drilling performance**

**IDS : Integrated Drilling System**

**DDS : Dual Damper System**

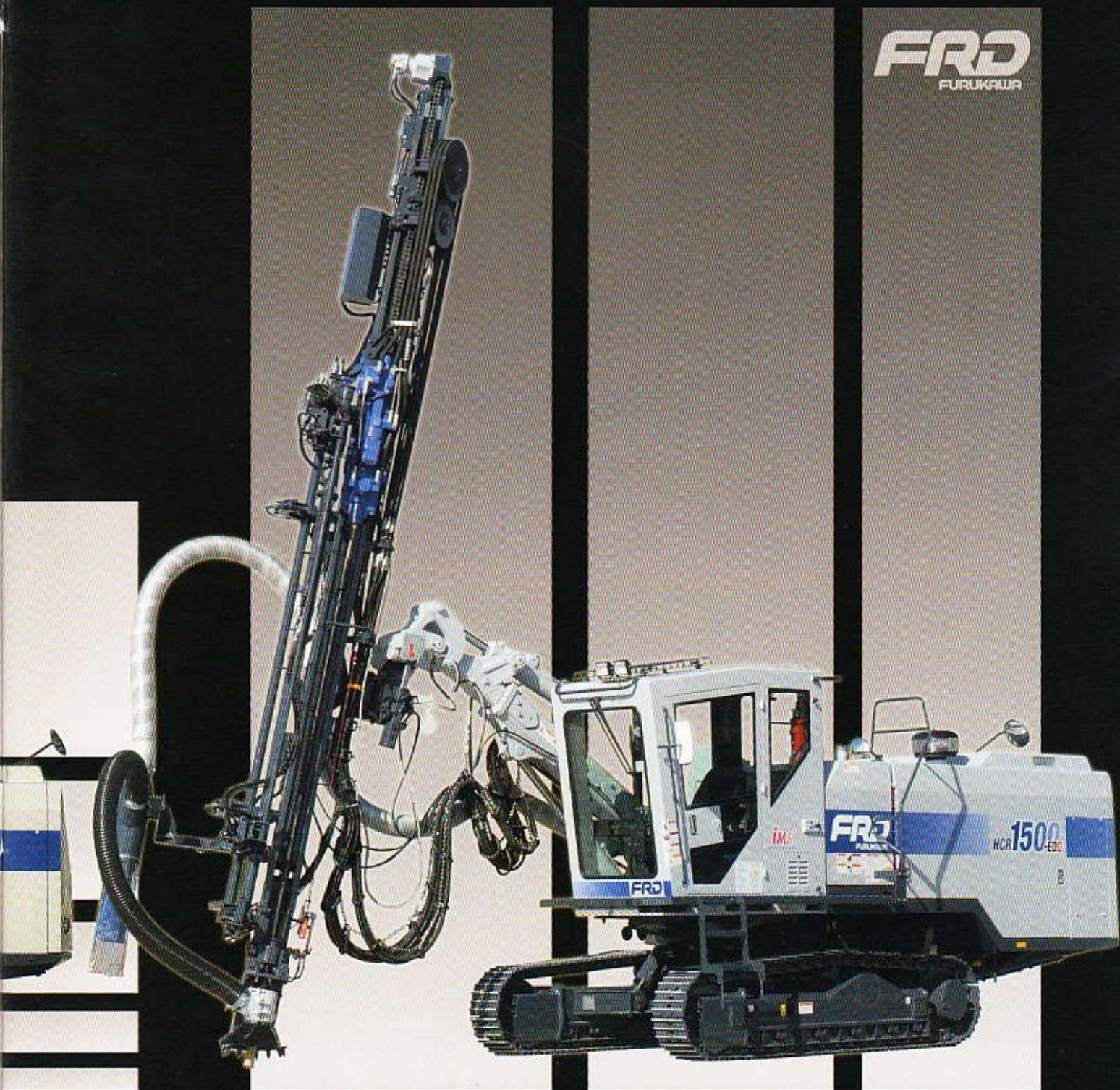
**FRD**  
FURUKAWA



*and economy*

# HCR1500-ED II

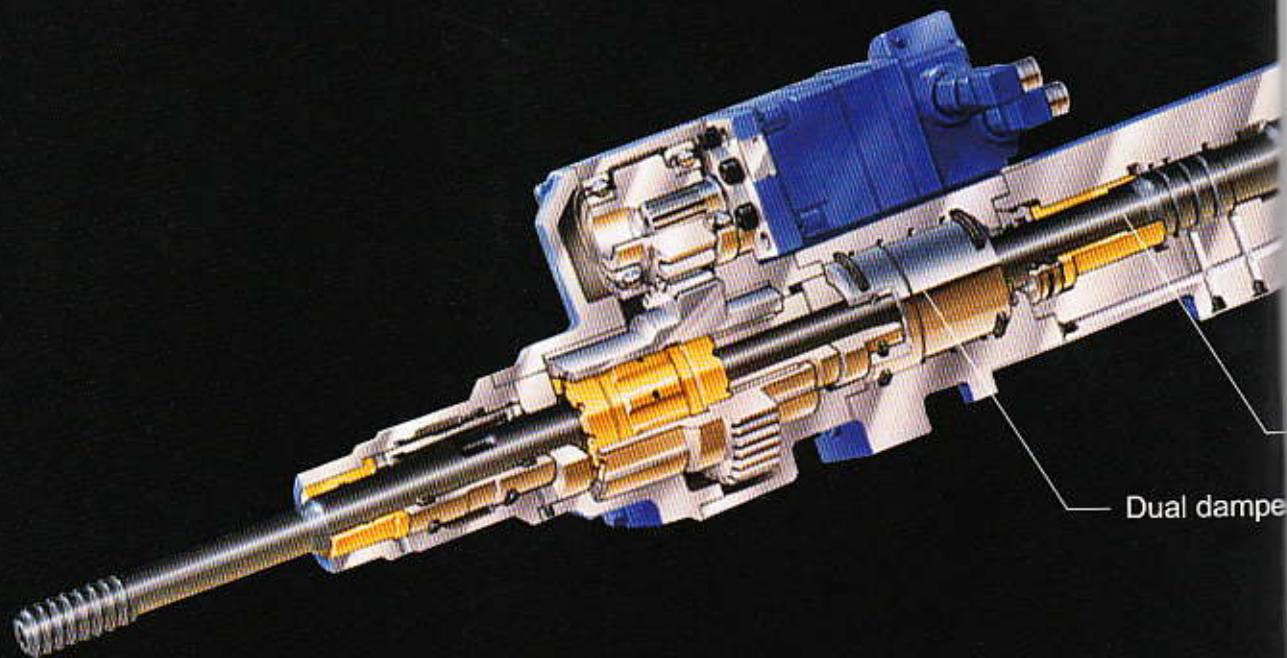
**FRD**  
FURUKAWA





# Drilling performer, HCR1500- High-productivity

Drill faster and straighter with our patented



## 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.

# ED II & Durability

HD715 drifter.



Compact valve design

Newly designed piston

# HCR 1500-ED II



## Integrated Drilling System

### 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.



**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 devise, 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 the ultimate

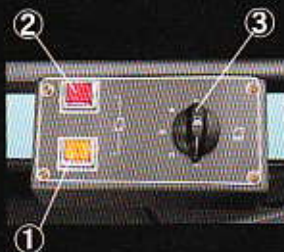


Powerful CAT engine is fully compliant with tier3 / Euro stage-3 emission control. It gives full control for easy drilling.

## Low-emission engine



Caterpillar and Cat are registered trademarks of Caterpillar Inc.



- ① Caution lamp
  - ② Stop lamp
  - ③ Engine throttle switch
- Position I : 1,250 min<sup>-1</sup>  
Position II : 1,600 min<sup>-1</sup>  
Position III : 1,800 min<sup>-1</sup>  
Position IV : 2,000 min<sup>-1</sup>  
Position V : 2,200 min<sup>-1</sup>

## Power-saving selector

By using power-saving selector, fuel consumption rate is reduced during light work condition.

Highest engine speed : 2,200 min<sup>-1</sup>  
Power-saving : 2,000 min<sup>-1</sup>

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

These systems support high productivity

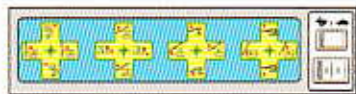
**with  
in drilling technology.**

**HCR1500-EDII**

### 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



Boom Slide / Guide Rotary (if equipped)  
Oscillating / Guide Slide switch  
Guide Tilt / Guide Swing switch  
Boom Lift / Boom Swing switch  
Power switch  
Operating speed selector switch

- ⑥ Indicator switch
- ⑦ Feed pressure control adjusting dials  
Collaring pressure adjusting handle  
Regular drilling pressure adjusting handle  
Rod revolutions adjusting handle
- ⑧ Air conditioner control panel

### Extension boom

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



### 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

### 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

# Easy operation and improved



## 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.

## Easy to check hole

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



Receiver tank



Dust collector



Pre-cleaner



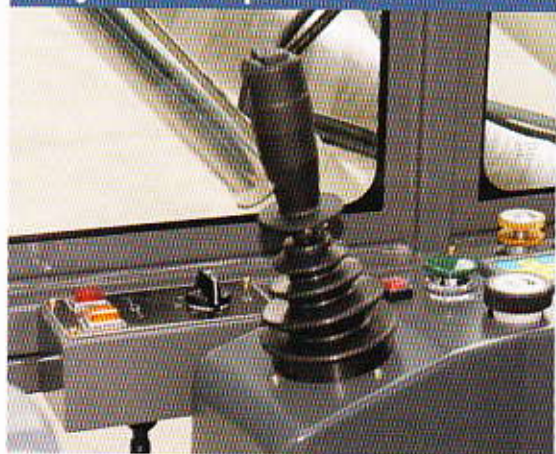
Greaser nozzle

Centralizer

Slide suction cap

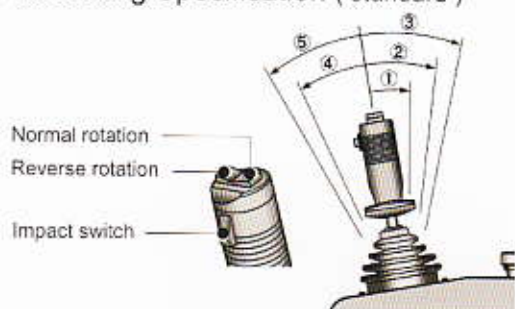


## Joystick operation



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)

## 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

### ① Drilling position indicator



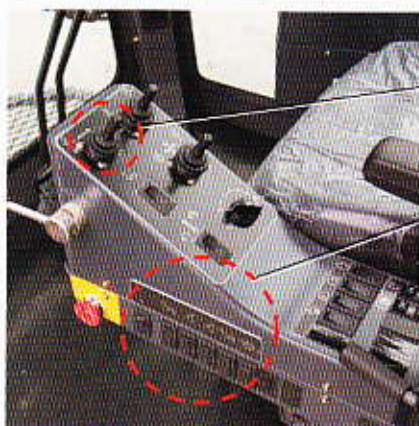
- Normal rotation position
- Reverse rotation position
- Collaring position
- Regular drilling position
- Fast backward position
- Normal feed position
- Normal feed position
- Fast forward position

- ② Impact pressure gauge
- ③ Feed force pressure gauge
- ④ Rotation pressure gauge
- ⑤ Flushing air pressure gauge



## 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 ( Joystick type )

Rod changer adjusting panel



- ① Manual / Auto selector switch
- ② Swing switch
- ③ Clamp(F) switch
- ④ Clamp(R) switch
- ⑤ Slide switch

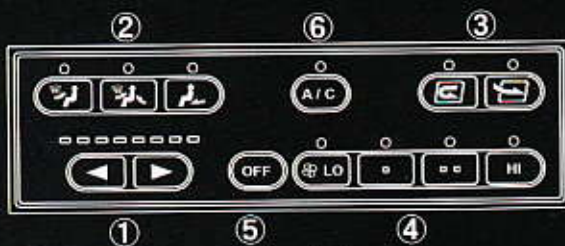
# Maneuverability, Safety & Visibili



## 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.

## Control panel for air conditioner



- ① Temperature control switch
- ② Mode selector switch
- ③ Internal / external air selector switch
- ④ Fan switch
- ⑤ OFF switch
- ⑥ Air conditioning switch



Front Blow



Front / Rear Blow



Foot Blow



## AM/FM radio



ty **Minimizes operator fatigue**

**HCR1500-EDI**



### Meter panel



- ① Starter switch
- ② Temp. gauge, compressor
- ③ Temp. gauge, hydraulic oil
- ④ Monitor panel



- Hydraulic oil level
- Hydraulic oil filter
- Hydraulic temperature(High)
- Compressor overheat
- Alternator(charge)
- Air cleaner
- Hydraulic oil temperature(Low)
- Compressor oil filter

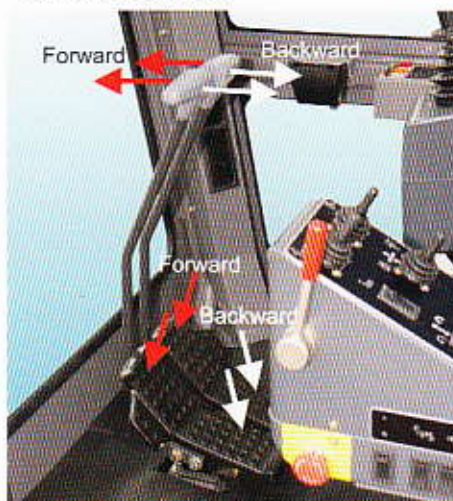
- ⑤ Fuel gauge
- ⑥ Temp. gauge, engine
- ⑦ Tachometer, engine

### Intelligent Monitoring System (IMS)

IMS is always monitoring machine conditions and supports trouble shoots for operator and mechanics. IMS support to reduce daily maintenance time and down time. (optional equipment)



### Travel levers



### Operator seat



Suspension seat (optional)

# Easy Maintenance & Safety

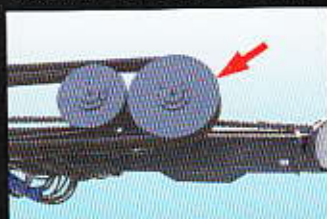
Accessibility  
for  
maintenance

## Fire extinguisher



Located at rear-right-side of the cab.

## Double hose reels



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

## Air-con filter



External air filter



## For Safety equipment

### Fan guards



Fan guards and bell 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.

# Functions.

# HGR 1500-ED II

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.

Showing pictures including optional equipments.



## 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**

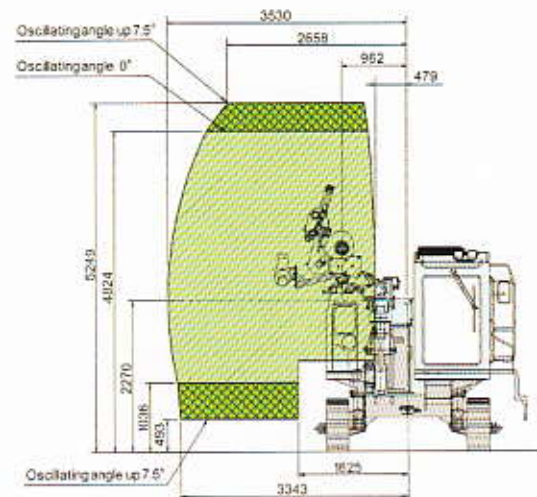


## Standard & Optional equipments

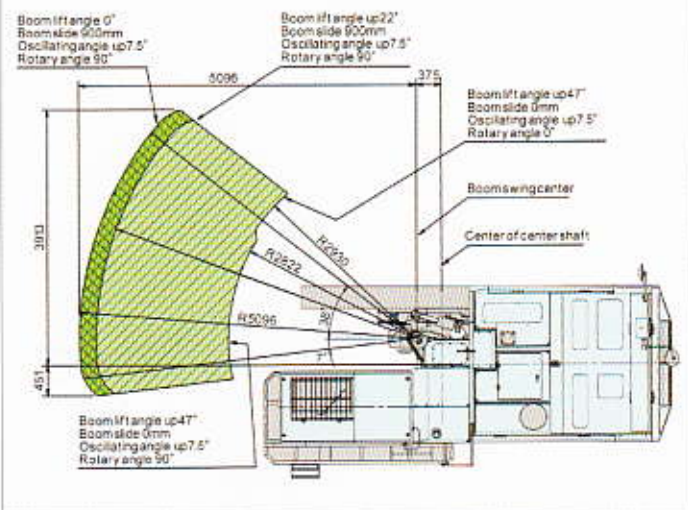
Unit	HCR1500-ED II	HCR1500-D20 II
<b>Drifter</b>		
HD715	Standard	Standard
Dual-Damper System	Standard	Standard
Reverse Percussion	Optional	Optional
<b>Guide shell</b>		
Hydraulic centralizer	Standard	Standard
Slidable suction hood	Standard	Standard
Open-Close + Slidable suction hood	Optional	Optional
Resinous wear plate for carriage	Standard	Standard
<b>Rod changer</b>		
Length of rod	12 ft 20 ft	Standard —
Rod size	45R (T45) 51R (T51)	Optional Standard
MM / MF rod	Select	Select
<b>Boom</b>		
Fixed boom	—	Standard
Extendable boom	Standard	—
Guide rotary	Standard	Standard
<b>Undercarriage</b>		
Triple shoe	Standard	Standard
Single shoe	Optional	Optional
Lifting eyes for transportation	Optional	Optional
<b>Dust collector</b>		
Pre-cleaner	Standard	Standard
Folding bracket for pre-cleaner	Optional	Optional
Exhaust shutter	Standard	Standard
Sinter-Lamellar filter	Optional	Optional
<b>Cab</b>		
ROPS/FOPS cab	Standard	Standard
High-backed seat	Standard	Standard
Suspension seat	Optional	Optional
AM/FM Radio	Standard	Standard
Intelligent Monitoring System	Optional	Optional
Intelligent Monitoring System 2	Optional	Optional
Side door mirror	Standard	Standard
Air conditioner	Standard	Standard
Rotating light (Yellow)	Optional	Optional
Leveler	Standard	Standard
Seat belt	Standard	Standard
Rear View Monitoring Camera (Black/white)	Optional	Optional
Rear View Monitoring Camera (color)	Optional	Optional
Additional lights (70Wx2)	Optional	Optional
Catwalk	Standard	Standard
Folding Catwalk	Optional	Optional
Evacuation hammer	Optional	Optional
<b>Control</b>		
Push switch for Boom control	Standard	Standard
Lever-operated switch for Boom control	Optional	Optional
Joystick control for impact, feed and rotation	Standard	Standard
Integrated Drilling System (IDS)	Standard	Standard
Active Dual-Damper	Standard	Standard
Anti-jamming system for air flow	Standard	Standard
Anti-jamming system for air pressure	Standard	Standard
Anti-jamming system for rotation pressure	Standard	Standard
Joystick controlled rod changer	Standard	Standard
Manual over-ride for rod changer	Standard	Standard
2 boom speed	Standard	Standard
2 travelling speed	Standard	Standard
Automatic equalizer lock	Standard	Standard
Back-up Alarm	Standard	Standard
Auto throttle control for impact and air flow	Standard	Standard
<b>Others</b>		
Guide tilt angle indicator by pendulum	Standard	Standard
Guide swing angle indicator by pendulum	Optional	Optional
2 Dimensional electric angle indicator	Optional	Optional
3 Dimensional electric angle indicator	Optional	Optional
3 Dimensional electric angle indicator with drilling depth and inclination	Optional	Optional
Water tank for water injection system	Optional	Optional
Emergency shut down system	Optional	Optional
Hour meter for engine	Standard	Standard
Hour meter for drifter	Optional	Optional
Tool box	Optional	Optional
Heavy duty under cover	Optional	Optional
Ladder for access rear engine cover	Optional	Optional
Bumper base	Optional	Optional
Water separator for engine	Standard	Standard
Pre cleaner for engine	Standard	Standard
Auto air release valve for compressor	Optional	Optional
Winter package for anti-freeze	Optional	Optional
High capacity battery	Optional	Optional
Energy-saving mode selector	Optional	Optional

## Drilling coverage

### Horizontal drilling coverage



### Vertical drilling coverage



## Optional equipment



2 dimensional electric angle indicator



3 dimensional electric angle indicator with drilling depth and inclination



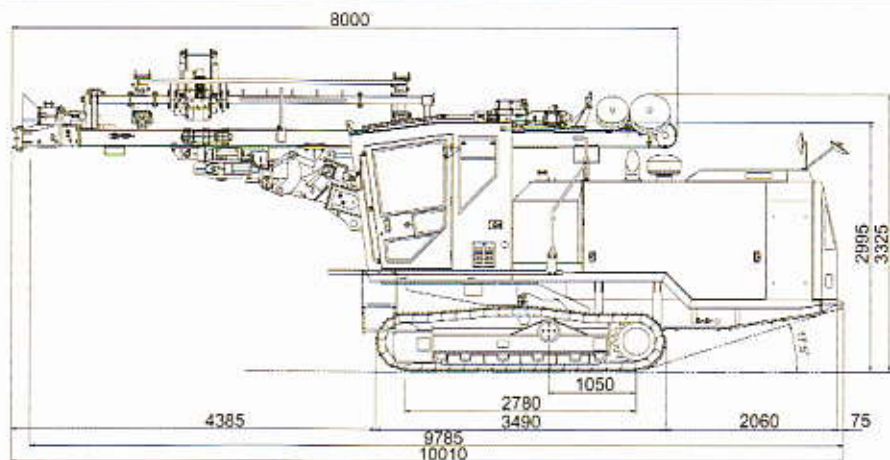
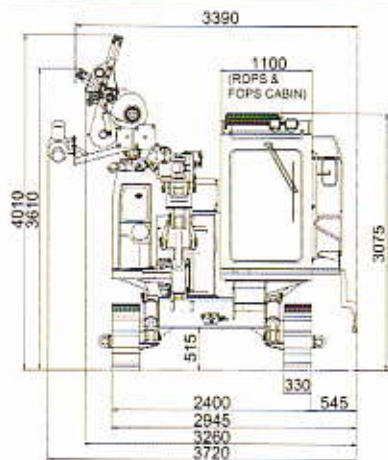
Reverse Percussion



Heavy duty under cover

## ■ Dimensions (mm)

# HCR1500-ED II



## ■ Specifications

Model	HCR1500-ED II	HCR1500-D20 II	
Weight & Dimensions	Operating weight with ROPS/FOPS cab	17,440 kg	18,650 kg
	Overall length	10,010 mm	10,200 mm
	Overall length (transportation)	11,185 mm	10,200 mm
	Overall width	3,720 mm	3,855 mm
	Overall width (transportation)	2,400 mm	2,850 mm
	Overall height	3,325 mm	3,380 mm
	Overall height (transportation)	2,995 mm	3,380 mm
Drifter	Model	HD715	
	Weight	250 kg	
	Impact rate	2,150 min <sup>-1</sup>	
	Number of rotation	0-150 min <sup>-1</sup>	
Undercarriage	Track length	3,480 mm	3,570 mm
	Ground contact length	2,780 mm	2,865 mm
	Width of shoe	330 mm	330 mm
	Grand clearance	515 mm	500 mm
	Oscillating angle	±7.5°	±7.5°
	Traveling speed	0-4.2 km/h	0-4.2 km/h
	Gradability	57.7% (30°)	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 <sup>-1</sup> 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 m <sup>3</sup> /min	
	Working air pressure	1.03 MPa	
Boom	Model	JE326-142	JF325-141
	Type	Extendable boom	Fixed boom
	Boom lift angle	Up45° Down20°	Up40° Down25°
	Boom swing angle	Right38° Left7°	Right35° Left7°
	Boom extension length	900 mm	-
Guide shell	Model	GH831-41	GH830-51
	Length	8,000 mm	10,200 mm
	Feed length	4,700 mm	6,763 mm
	Feed length with R/P	4,520 mm	6,573 mm
	Guide slide length	1,500 mm	1,500 mm
	Guide swing	Right38° Left38°	Right25° Left90°
	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 m <sup>3</sup> /min	
	Number of filter	6	
Rod changer	Loaded rod capacity	6	4
	Length of rod	3,660 mm (12 ft.)	6,100 mm (20 ft.)
	Control lever	1	1
	Rotator	Option	Option
Bit & Rod	Recommended bit diameter	89 - 127 mm	
	Type of bit	Cross, Button, Ballistic, Conical	
	Size of rod	45R (T45), 51R (T51)	51R