

FORWARD

C4 CORING DRILL RIG

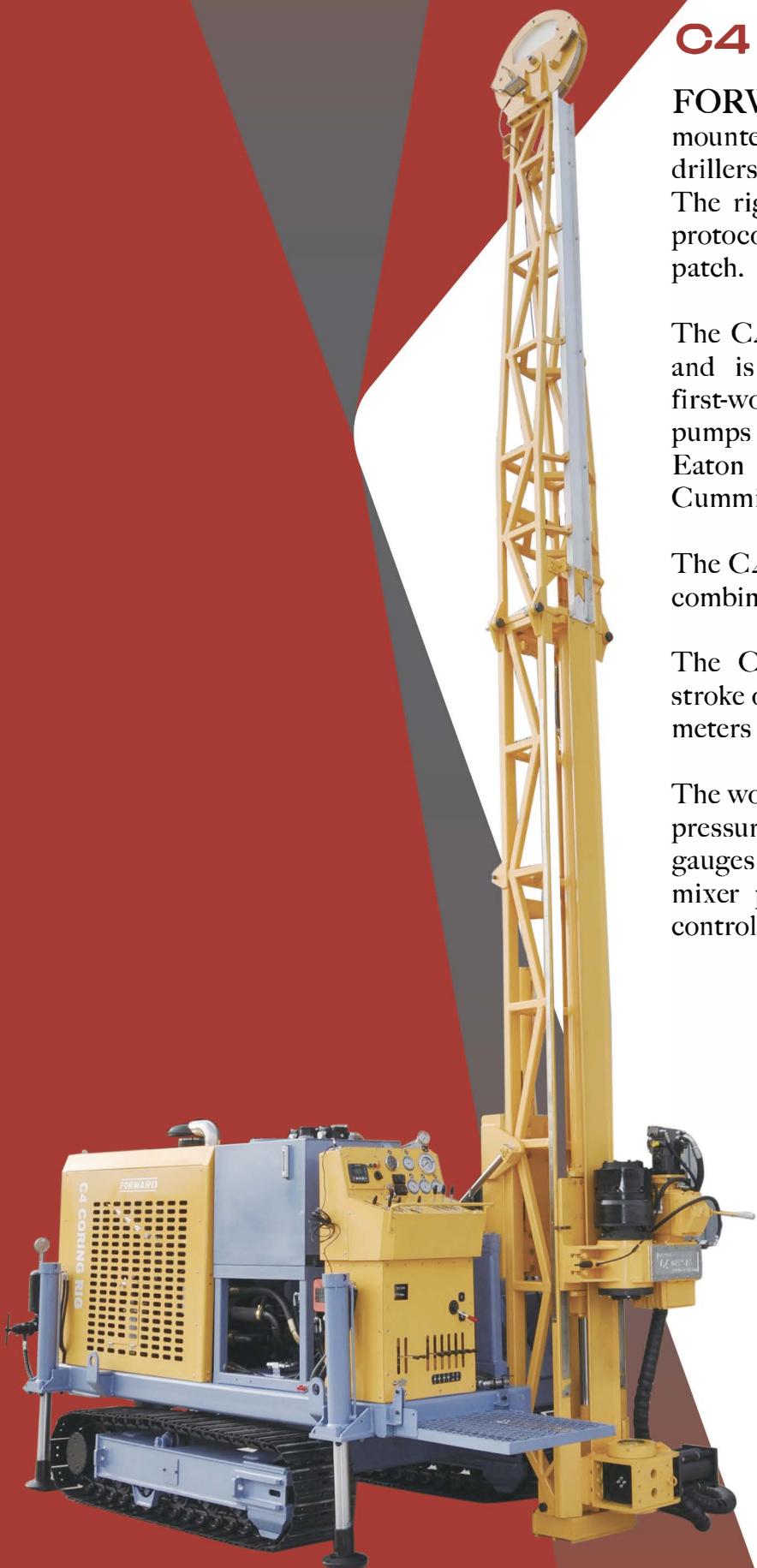
FORWARD'S C4 is a compact crawler mounted rig with all the user-friendly functions drillers are looking for and all at their fingertips. The rigs are built under strict quality control protocols and are rigorously tested before dispatch.

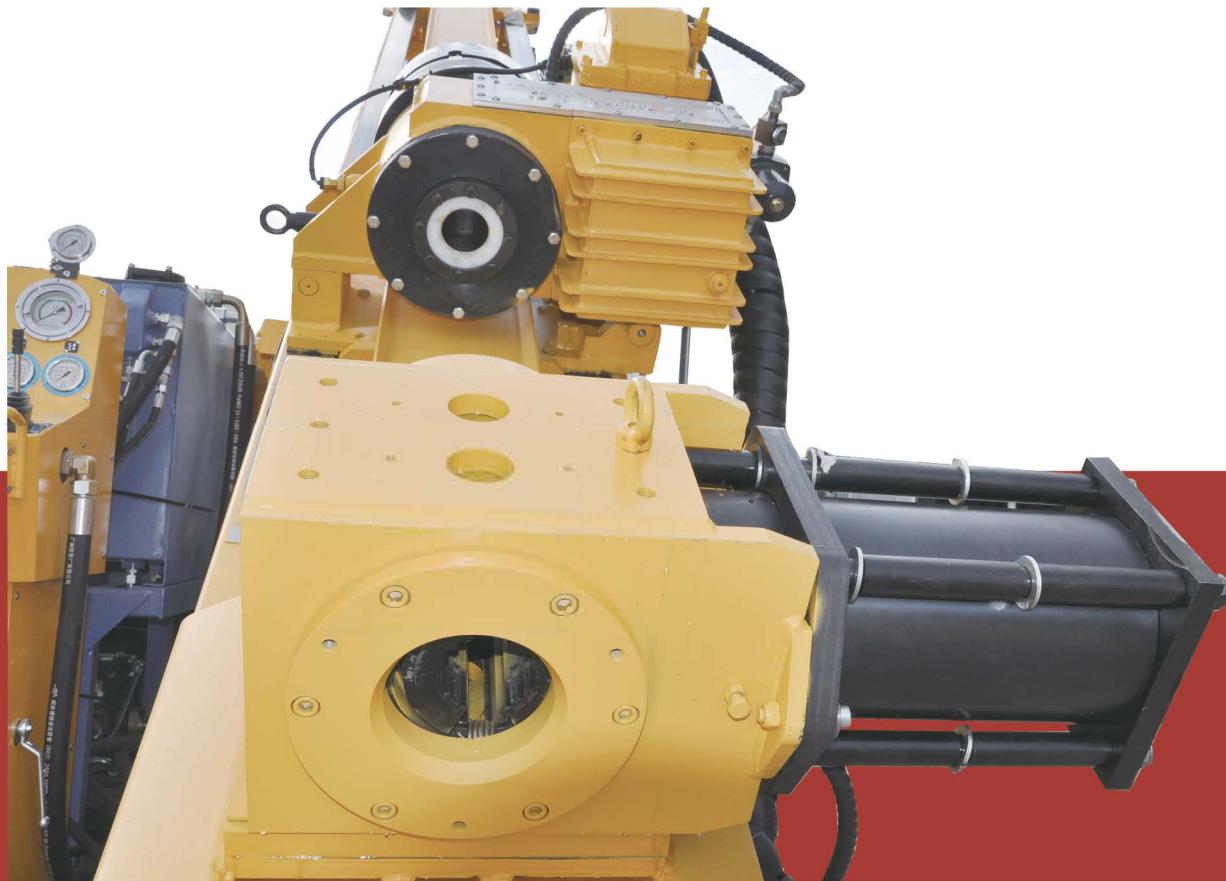
The C4 has been built with reliability in mind and is assembled using only the very best first-world components such as Bosch Rexroth pumps and HAVE valves, Bosch Rexroth and Eaton hydraulic motors, Manuli Hoses and Cummins engines.

The C4 has the 4 speeds gear box provides free combination of torque and rotation speed.

The C4 equipped PQ chuck and 3500 mm stroke of rotation facilitates handling of rods of 3 meters length.

The wonderful convenience of control of feeding pressure, Real time reading of drilling data on gauges on the control panel. Mud pump and mixer powered by the rig's hydraulic system, controlled directly on the rig's panel.





With safety in mind, the C4 has all the features that you'd expect in a modern rig such as safety guards and emergency stop buttons on all corners of the rig, fire extinguishers and optional automatic Co2 fire suppression.

ROTATION HEAD

The 4 Speed Rotation Head can accept all sizes of coring rods up to PQ.

Patented chuck jaws and hydraulic opening/spring close function insures a fail-safe operation.

The Rotation Head is connected direct to the hydraulic feed cylinder which simplifies the whole mast design and minimizes maintenance.

The Rotation Head also rotates to the side and opens the whole mast up to run casing or pull tubes etc.

MAST

The Rigid design of the mast provides superior performance and reliability even under the toughest geological conditions.

The set-up controls are mounted at the side of the rig and can be isolated from the circuit during drilling operations.

The Mast raise cylinders are equipped with balancing valves to increase safety.

The folding mast allows the rig to be transported on short trailers or in a shipping container.

The Dump Mast reaches the ground at angles up to 45 degrees and ensures all the pullback forces are absorbed by the ground and not the rig.



CONTROL PANEL

Both the Rotation and Fine Feed controls are fitted with friction dampeners with positive and easy to find neutral positions.

All the gauges are conveniently located for ease of monitoring.

HOOD

The steel hood provides adequate protection from the elements yet opens up for ease of maintenance.

HYDRAULIC SYSTEM

All the hydraulic pumps are genuine Variable Displacement, Pressure Compensated, Load Sensed Sauer Danfoss Piston pumps.

MAIN HAUL WINCH

The Haul Winch is securely mounted central to the rig chassis.

WIRELINE WINCH

The Wireline Winch has auto spooling and 1500 meters capacity.

CRAWLER CHASSIS

The Crawler chassis is manufactured in house and has quality Korean sourced hydraulic drive motors.

MUD PUMP

The 1000psi mud pump is conveniently located at the front of the rig for ease of maintenance but high enough to allow a descent angle of attack when traversing creek beds.



TECHNICAL SPECIFICATIONS

| ROD SIZE | MUD FILLED HOLE | |
|-----------------------|---------------------|-------------------|
| Drill Rod/Core Barrel | Hole Depth (Meters) | Hole Depth (Feet) |
| BRQ/BQ | 1,300 | 4,265 |
| NRQ/NQ/NQ2 | 1000 | 3,280 |
| HRQ/HQ | 700 | 2,300 |
| PHD/PQ | 400 | 1,312 |

* The figures have been calculated based on a vertical, straight, clean down hole using a 8000Kg hoist (single line pull). Actual drilling capacity will depend on in-hole tools, conditions, drilling techniques and equipment used.

Engine

Cummins 6BTA5.9-C180, liquid cooled, turbo charged, inter-cooled diesel engine

| | Metric | U.S. |
|------------------------------|--------|--------|
| Displacement | 5.9 L | 5.9 L |
| Power (maximum) at 2,500 RPM | 132 KW | 180 HP |
| Emissions Certification | EU II | EU II |

Torque and RPM Ratings

(hydraulic motor at maximum/minimum displacement at 2,200rpm engine setting)

| | Speed (no load) | Torque (stall) (Max) |
|----------------------|-----------------|----------------------|
| | RPM | Nm |
| 1 st Gear | 0 – 190 | 4 257 |
| 2 nd Gear | 180 – 378 | 2 408 |
| 3 rd Gear | 380 – 679 | 1 340 |
| 4 th Gear | 670 - 1200 | 680 |

NOTE: Drill head output speed and torque are infinitely variable in each gear range as indicated. Actual rotation speed is affected by engine RPM and hydraulic motor displacement setting.

| Hydraulic System | | |
|-------------------|---|-----------|
| | Metric | U.S. |
| Primary Pump | Axial piston, variable displacement load sensing, pressure compensated with low pressure standby. | |
| Max Flow | 182 L/min | 48 gpm |
| Maximum Pressure* | 28 Mpa | 4 060 psi |
| Secondary Pump | Axial piston, variable displacement load sensing, pressure compensated with low pressure standby. | |
| Max Flow | 135 L/min | 11 gpm |
| Maximum Pressure* | 20 Mpa | 2 900 psi |
| Tertiary Pump | Axial piston, variable displacement load sensing, pressure compensated with low pressure standby. | |
| Max Flow | 39 L/min | 26 gpm |
| Maximum Pressure* | 21.5 Mpa | 3 120 psi |

*Factory setting

| Drill Head | | |
|----------------------------|---|--|
| Stand PQ – Hollow Spindle | | |
| Rotation Motor | Bosch Rexroth hydraulic motor – variable/reversible | |
| Mechanical Transmission | Funk 4 speed | |
| Final Drive | Straight cut gears | |
| Head lateral movement | Hydraulically operation | |
| Hydraulic PQ Chuck | Hydraulically opened. Disk spring closed. | |
| | Axial holding capacity of 244 640 N (55 000 lbf) | |
| Drill Head Lubrication | Force fed to the bearings and oil bath for gears | |
| Lubricating Oil Filtration | 25 micron high pressure oil filter | |

| Drill Mast And Feed System | | |
|----------------------------|---|------------|
| | Metric | U.S. |
| Feed Stroke | 3.5 m | 11.5 ft |
| Feed Pull | 107 000 N | 24 054 lbf |
| Feed Thrust | 59 600 N | 13 400 lbf |
| Rod pull | 6 m | 20 ft |
| Drilling Angle | 30° off horizontal to 90° vertical down | |

| Draw Works | | |
|-----------------------------------|-----------|------------|
| | Metric | U.S. |
| Main Line Hoist | | |
| Double speed motor | | |
| Hook Load (single part line) | | |
| Bare Drum | 80 000 N | 17 894 lb |
| Hoisting Speed (single part line) | | |
| High Speed (Bare Drum) | 85 m/min | 278 ft/min |
| Low Speed (Bare Drum) | 50 m/min | 164 ft/min |
| Main Hoist Cable | 22mm | 0.886 in |
| Minimum Breaking Strength | 160 000 N | 35970 Lbf |
| Foot Clamp Capacity | PWT | |

| Wireline Hoist | | |
|-------------------------------|-----------|-------------|
| | Metric | U.S. |
| Line Pull | | |
| Bare Drum | 1 500 Kg | 3 300 lb |
| Full Drum | 425 Kg | 940 lb |
| Line Speed | | |
| Bare Drum | 121 m/min | 395 m/min |
| Full Drum | 430 m/min | 1 410 m/min |
| Drum Capacity (6mm swaged) | 1 600 m | 5 250 ft |
| Minimum Breaking Strength | 3 420 Kg | 7 540 lb |

| Additional Information | | |
|------------------------|--------|-----------|
| | Metric | U.S. |
| Fuel Tank Capacity | 200 L | 52 US gal |

Fluid Circulation Pump

Single-Action Triplex Piston Pump, Manual shift, Pump Speed are infinitely variable.

| | Metric | U.S. |
|--------------|-------------|---------------|
| Displacement | 0 - 160 LPM | 0 - 42 gpm |
| Pressure | 0 - 10 Mpa | 0 - 1 450 psi |

DIMENSIONS AND WEIGHT

| Dimensions and Weight | |
|-----------------------------------|--------------------------|
| Weight | 8 500 Kg |
| Transportation Dimensions (L×W×H) | 6 200 × 2 240 × 2 600 mm |

HEAD OFFICE

No . 175 Visayas Avenue, Brgy. Gavino Maderan, Gen. Mariano Alvarez (GMA), Cavite 4117. Philippines.

Tel: +63 46 972 2001 / +63 46 972 4813

E-mail: info@forwarddrillcom

Web-site: www.forwarddrill.com

FACTORY

Lianyungang Forward Heavy Industrial Machinery Co., LTD
6#, Tinyue Rod, Lianyungang Economic and Technological Development Zone, Lianyungang city, Jiangsu province, China, 222047

Tel: +86 518 81089618

Fax: +86 518 81599918

WhatsApp: +86 13056057070

E-mail: info@forwarddrill.com

Web-site: www.forwarddrill.com