

Petroleum Equipment



China National Petroleum Corporation

CNPC Equipment

Equipment manufacturing is one of CNPC's major business sectors. CNPC owns over 100 equipment manufacturers and has established a complete system in design, manufacturing, marketing and services of drilling, production, power and offshore equipment and steel pipes. We also boast remarkable competence and product series in refining, geophysical prospecting and logging equipment manufacturing.

We provide petroleum equipment in a full range of the industry from upstream to downstream in both onshore and offshore applications.

Our major manufacturers have all been ISO 9000, ISO14000 and ISO 10012 certified, with over 60 kinds of products been API certificated.

Marketing Network

CNPC has established a mature international marketing network and an after service network with 63 overseas organizations in 49 countries, including 14 maintenance centers located in Mid-Asia, South America, North America, the Middle East, Africa and Asia-Pacific. We sell products to more than 70 countries and have built strategic cooperation ties with 600 customers around the world.



Offshore Engineering Equipment

CNPC can independently design and manufacture various kinds of drilling platform, workover platform, production test platform and oil extraction platform with operating water depth less than 400ft. Drilling & workover rigs below 9,000m (3,000HP) can be installed on the platforms.



CP300 Jack-up Drilling Platform

Length moulded	60.98m
Breadth moulded	55.78m
Depth moulded	7.62m
Maximum operating water depth	91.4m

Offshore Engineering Equipment

CPOE 9/10 Jack-up Rigs

Max. operating water depth	90m
Light draft while towing	3.4m
Max. wind speed	51.5m/s
Max. drilling depth	7,000m
Cantilever envelope	3.66m×12.2m
VDL	2,269t
Accommodation	94
Survival days	20



CPOE 101 Heavy Lift and Pipe Laying Vessel

Hoisting capacity	400t
Pipe-laying diameter	4-40"
Pipe-laying rate	2.5 km/d
Survival days	30
Accommodation	200
Operating draught	2.30-4.00m
Length	123.78m
Width	32.2m
Moulded depth	6.5m

Offshore Engineering Equipment



LG360/60T Coiled Tubing Unit

LG360/60T coiled tubing unit is mounted on two vehicles. With breakthroughs in eight aspects such as hydraulic control, clamping method, surface treatment of clamping blocks, wellhead blowout prevention systems, and chain synchronization, it can better cater for the road and well site conditions in oilfields of China. As a technical leader in the world, the machine enables staged fracturing, CT acidizing, sand washing and flushing, logging and testing, fishing, sidetracking, and other downhole operations.



Datasheet of Coiled Tubing Unit Series

Main Technical Specifications		Model				
		LG 180/38	LG 270/50	LG 360/60	LG 450/67	LG 580/73
For CT	CT dimensions (inch)	Max. length (m)				
	1 "	7,000				
	1-1/4 "	5,500	7,000			
	1-1/2 "	4,000	5,000			
	1-3/4 "		4,000	6,000		
	2 "		3,000	5,000	6,000	
	2-3/8 "			4,000	4,500	
	2-5/8 "			3,000	3,500	4,000
	2-7/8 "				3,000	3,500
	3 "					3,000
	3-1/2 "					2,200
Max. injector pull (kN)		180	270	360	450	580
Max. lifting velocity (m/min)		60	60	50	50	50
Rated manifold pressure (MPa)		70	70	70	105	105
Rated pressure of BOP system (MPa)		70	70	70	105	105
Transport method (truck, skid, trailer)		Truck & skid	Truck, skid & trailer	Truck & trailer	Truck & trailer	Truck & trailer

KZ-34 Vibrator

The KZ-34 Vibrator is a safe and powerful seismic source for land seismic exploration. It can be used for seismic exploration on plains or complex regions such as Gobi and mountain foothills.

Main specifications

Peak force	391KN (88,000lbs)
Frequency	6-200Hz
Gradeability	60%
Max speed	27km/h
Tires and wheels	78×45-32
Gross	43t
Dimensions	10,600mm×3,400mm×3,460mm

Main features

- ◎ Two guide columns with a stiff mechanical assembly, hydraulic oil lubrication
- ◎ Low center of gravity mass, servo-valve horizontal assembled
- ◎ Mass built-in rubber bag accumulator
- ◎ 2-step hydraulic control pressure-up valve
- ◎ High strength steel frame
- ◎ 4×4 hydraulic articulated chassis with desert tires and wheels
- ◎ Powerful shift gearbox
- ◎ Hydraulic actuated internal wet disc brake, spring actuated wet disc for parking
- ◎ Two person cab, steel construction, wide-angle, air conditioner, a berth in back row



EILog™ Express and Imaging Logging System

EILog consists of an integrated surface system, express combo conventional logging tools, imaging logging tools, production logging combo tools and log data processing and interpretation software. It is suitable for openhole, cased-hole and engineering logging, as well as perforating and coring.

System Composition

Integrated surface system

IDAP — Integrated data acquisition and processing system
ACME software — Acquisition control management expert

Integrated conventional logging tools

TELC — Telemetry logging tool
SNGR — Spectral natural gamma ray logging tool
HRDL — High resolution dual laterolog logging tool
DIL — Dual induction 8-laterolog logging tool
NDMS — Compensated neutron & micro spherical combo logging tool
LDLT — Lithology density logging tool
DAS — Digital array sonic logging tool
CCIM — Caliper-inclination combo logging tool
CCL — Casing collar locator logging tool
DVDS — Digital acoustic variable density logging tool
TTMR — Tension, temperature, mud of resistivity logging tool
SSDT — Six-arm stratigraphic dipmeter logging tool
RBST00127CA — Rotation sidewall coring tool

Imaging logging tools

MIT — Multi-array induction logging tool
HAL — High-resolution array laterolog logging tool
MCI — Micro-conductivity imaging tool
UIT — Ultrasonic imaging tool
MPAL — Multi-pole array sonic logging tool
MRT — Multi-frequency nuclear magnetic resonance logging tool

Cased hole logging tools

HSR7 — 7-paramater PLT combo logging tool
TCFR — Through casing resistivity logging tool



Imager Tools

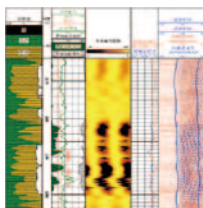
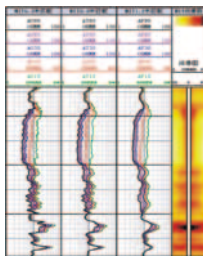
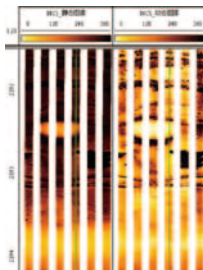
Multi-Array Induction Imager Tool

MIT is equipped eight group coil arrays, and performs real time acquisition of multiple frequencies. The tool measures 28 real and imaginary conductivity raw curves of original formation. Through digital synthetic focusing and software imaging, the tool provides 15 formation conductivity processed curves of 3 vertical resolutions (1ft, 2ft and 4ft) and 5 radial investigation depths (10in, 20in, 30in, 60in and 90in). The tool is mainly used to quantitatively describe bedding and invasion characteristics, to measure formation conductivity and to calculate the oil saturation of the formation.

Micro-Conductivity Imager Tool

MCI provides a high resolution image of bore hole. It is one of important methods for logging evaluation in complex heterogeneous reservoir and geologic characteristic analysis.

MCI has 6 pads with 144 electrode buttons, 24 electrode buttons are distributed on each pad.



High-resolution Array Laterolog Imager Tool

HAL tool includes 25 array electrodes that operate at multiple frequencies. The tool measures from mud resistivity to different R_t , and enhances thin-bed analysis that is up to 0.3m.

HAL provides five resistivity curves with different investigation depth and one mud resistivity curve. Not influenced by Groningen effects.

MPAL / Multi-Pole Array Acoustic Logging Tool

MPAL have 1 monopole, 2 cross dipoles, 1 quadro-pole transmitter, and 8 receivers. It provides P-wave, S-wave and Stoneley wave transmit time interval used in open hole and cased hole. It is used to identify the lithology, calculate geomechanics of formation, get the porosity and estimate the permeability of formation etc. .

UIT / Ultrasonic Imager Tool

UIT can provide acoustic wave amplitude and time images used ultrasonic echo wave. The 2D images describe the image of rock formation or casing visually full borehole.

The tool can be used both in an open hole to reflect hole geometry and to identify fractures, and also in a cased hole to inspect perforation quality, to detect casing damage etc..

BOP



Annular BOP

Hydraulic Pressure: 8.4-10.5MPa

Hydraulic connection: NPT1

Media: Oil & gas drilling fluid containing H₂S

Working temperature: -29°C~121°C

Ram Blowout Preventer

Hydraulic Pressure: 1,200-1,500Psi(8.4-10.5MPa)

Hydraulic connection: NPT1

Working temperature: -29°C~121°C

Media: Oil & gas drilling fluid containing H₂S

Ram size and type: series size pipe ram, reducing ram and cutter ram

Control System for Surface Mounted BOP Stacks

FKQ800 FKQ720 FKQ640 FKQ480 FKQ400

FKQ320 FKQ160

FK240 FK160 FK125 FK100 FK50

Drilling Mud Pumps

CNPC has 40 years' experience in designing and manufacturing mud pumps and provides the largest quantities with the most varieties of mud pumps in the world. Authorized by LTV Co. of US, we produce F-500, F-800 and F-1000 mud pumps.

- ◎ F-1300, F-1600, F-1300L and F-1600L mud pumps have a Max. Pump pressure of 34.5MPa (5,000Psi) and a displacement of 46.5L/S with a liner of $\Phi 180\text{mm}$. These two models are the first choice for medium and deep drilling rig as an assorted component.
- ◎ F-1600HL, F-2200HL mud pumps with high-power and high-pressure are developed to meet drilling requirements of offshore deep-water, terrestrial and horizontal wells, especially in desert areas.
- ◎ F1-800, F1-1600 light- weight series mud pumps are newly designed. Compared with same power F-series mud pumps, the advance of less volume and weight is appropriate for the rigs working in swamp and helicopter-lifting rigs.
- ◎ QDP-3000 five-cylinder mud pumps, with large power, high pressure, big displacement, small size and light weight, are especially suitable for offshore platform and drill ship.



F-1600 mud pump

The design and manufacture of F-series mud pump is in compliance with API Spec 7K.

Model	F-1600
Type	Triplex single acting piston pump
Max. Liner Size	180mm 7"
Rated power	1,180kW
Rated stroke	120spm
Stroke length	305mm
Gear ratio	4.206
Valve cavity	API 7#
Weight	24,971kg



China Petroleum Technology & Development Corporation

China's largest supplier of petroleum and petrochemical materials and equipment.

A wholly-owned subsidiary of China National Petroleum Corporation.

Provide a full range of materials and equipment from upstream to downstream of petroleum industry with customized, in-time and all-around services around the world.

Products cover 180 varieties in 8 categories, including drilling, production, power, steel pipes, refining & chemical, offshore, geophysical prospecting and logging.

- ◎ Drilling equipment: drilling rig, workover rig, parts of drilling rig, engine, solid control equipment, top drive system, drilling mud pump, well head and control equipment, cementing equipment and drilling tools etc.
- ◎ Production equipment: pumping unit, sucker rod, electrical submersible pump, screw pump, and thermal production equipment etc.



- ◎ Power unit: 190 series engine, series 26/32 diesel engines, marine diesel engine, composer set, hydraulic transmission device, gas power integration, and power electric control etc.
- ◎ Steel pipe: line pipe, drill pipe and coiled tubing etc.

- ◎ Refinery equipment: flue gas turbine, slide valve, and special valve etc.
- ◎ Offshore equipment: CP series platform, engineering vessel, offshore drilling and workover rig module
- ◎ Geophysical prospecting equipment: vibroseis, seismic drills, geophone, special vehicle, engineering seismograph, and auxiliary equipment etc.
- ◎ Logging equipment: EILogTM Express & Imaging Logging System, DML Mud Logging Unit, FELWD/Formation Evaluation Logging While Drilling System, CGDS NB (China Geosteering Drilling System Near-Bit)





DQ120BSC

Nominal drilling depth	12,000m (W/114mm drill pipe)
Max. load (API 8A/8C PSL1)	9,000KN 1,000ton
Rpm	0-180r/min
Operating torque (continuous)	85KN(0-90r/min) 62,000lbf.ft
Max. breakout torque	135KN 99,000lbf.ft

DQ90BSC

Nominal drilling depth	9,000m (W/114mm drill pipe)
Max. load (API 8A/8C PSL1)	6,750KN 750ton
Rpm	0-200r/min
Operating torque (continuous)	70KN (0-100r/min) 51,100lbf.ft
Max. breakout torque	125KN 91,600lbf.ft
Clamp range of backup tong	87-216mm 2 7/8"-6 5/8"





CPOE 10



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