

SOLUTIONS • PRECISION • SAFETY

MORE EFFICIENT IN OIL & GAS EXTRACTION



## **INTEGRATED ENERGY SERVICES**

TO BE THE TOP-CLASS HIGH-END PETROLEUM EQUIPMENT RESEARCH AND DEVELOPMENT MANUFACTURE, TO BE TOP OILFIELD INTEGRATED TECHNICAL SERVICE PROVIDER; TO BE TOP OILFIELD EPC GENERAL CONTRACTOR.

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# Company Profile

## 1.1. Executive Summary

Integrated Energy Service CO. (IESCO) industry understand the dynamic of the Oil/ Gas services by focusing in the need to establish Libyan Market to be the back bone of services sectors work side by side with energy companies in Libya where these companies will focus into what they do better from the exploration to the final production. IESCO has a high level of diversified knowledge and experience in our firm; however, one of our strengths is our ability to access any needed expertise rapidly and reasonably. Then we consider it important that short term and long term goals are identified. IESCO participation in this process will be to serve as members, collaborators and facilitators for the decision making team. The establishment of short term and long term goals will require dedicated study, i.e. a “needs assessment study”. IESCO has both internal and external resources to provide for the accumulation of data needed to set these goals, and to assist with the subsequent accomplishment of such goals. Introduction & Background

Founded in February 2013 is a Libyan company with 100% Libyan investment. IESCO brings a variety of talent and skills together to accomplish Oil/GAS Services development projects for the country of Libya.

Our vision is to provide our clients with quality services and data.

Our Mission is to provide World class quality, value added service, in a safety first culture with prime consideration to the local community and environment whilst maximizing the development and benefits to the local economy.

We have identified various Oil/Gas services program components and proposed an array of services that are available in entirety or may be selected individually as needed. Among those to consider are:

1. **Environmental needs assessment**
2. **Drilling and workover**

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3. **S**urface testing
  4. **F**acility condition assessments and facility construction
  5. **P**rocurement of equipment, staff, technology, and supplies.
  6. **H**uman resource development and professional training
  7. **D**evelopment of international know how technology relationships
  8. **E**nvironmental policy and regulation development
  9. **P**rovision of managerial expertise
  10. **D**evelopment of research collaborations

We are committed to delivering practical, effective and streamlined solutions to reduce total system cost, optimize, and develop the value for our customers' exploration portfolio. We leverage our expertise and core competencies through knowledge transfer and training programs. We maintain our leading edge by constantly monitoring internal technology advancements and new technology across the industry.

## **2.1.Company Objectives**

### **Drilling &workover**

One of the company objectives envisages drilling of deep depth wells. These wells are proposed to be spudded or depending upon the programmed of Exploration & Operation (E&P) Companies. our partner is an active reputed drilling rig contractors registered with I.A.D.C from last Five years, having minimum 10 rigs operating worldwide with more than 10 years continuous experience in drilling of oil & gas wells,. The broad rig specifications for API standard western design deep depth rigs electrical SCR/VFD Fast move of rigs 1000,1500 and 2000 HP Draw works capacity, and 750HP workover as listed in Appendix A & B



## Well testing

Second of the company objectives well testing division ,was formed using best in class solutions, personnel techniques and equipment to service the growing market and demand for dependable service, providing high quality data that can be used reliably in the decision making process for reservoir management.



The Portable Well Testing Package consists of Desert – environment trailers equipped with all the Necessary surface well test equipment to perform on shore well testing operations, whether on a rig, in field operations or desert remote locations. The Trailer has mounted on it all the process equipments, such as data header, ESD, Choke Manifold, Separator, Lab Cabin and Office, Data Acquisition System, Power & Air Generation equipment along with

the other safety and support equipment. The concept is a rapid “roll on- roll off” model where rig up & rig down times are reduced with a minimum amount of hard pipes, hoses and cables to be deployed prior to pressure testing the temporary connections.

## Trailer Mounted well test unit

### Main Technical Characteristics

Sr No	Item Description	Specification on Supplied Package
1	Trailer Size	17.5 mtr long X 2.6 mtr wide Flat Bed
		2 spare Desert /Off Road Tyres
		4 Alum. Ladder
2	Generator	40 Kva , Cummins Make
3	Compressor	10 HP, 40 CFM Fini - Italy Make
4	Lab Cabin	10Ft Standard Cabin with Emergency Exit
5	Lab Item	Dead Weight Tester (0-10K)
		Ranarex Gas Gravitometer
		Centrifuge machine
		Dragger for H2S/ Co2
		PH Paper
		Thermometer
6	ESD Panel	Measuring Cylinder
		Single String- with 4 ESD buttons
7	Pressure Test Unit	PTP with Hose- Test Pressure 15K
8	Water tank	Approx -1000 Ltr tank
9	Water Filling Pump	Wilden Pump for Water Filling -15GPM
10	Choke Manifold	3 1/16 -10K Diamond Type
		WOM Valves
		Choke beans sizes - Vendor Standard
		With Tool Box and Wrench
11	Surface Safety Valve	3/16-10K SSV Wom Make
12	Data header	3/16 10k x 3"1502 Hu, with 5 ports

<b>Separator</b>		
13	Vessel Size	42" x 15'
14	Vessel Instrument	
	PSV	1440 psi and 1330 psi / Pilot operated type
	Level controller	249B-2500 Fisher (oil & Interface)
	Level gauge	1 with each controller
	Pressure Gauge	0-2000 psi
15	Gas Line	
	Lines Sizes	6" and 2"
	Orifice meters (Danial type)	6" and 2"
	Control Valves (Fisher type)	4" on main gas line and 2" on 2" Line
	Chart Recorders (Barton type)	SP :0-1500 psi Temp 0-250 F Diff: 0-400 "WC
		SP :0-1500 psi Temp 0-250 F Diff: 0-100 "WC
	Check Valve(Baloon)	4" Wafer Type
	Pressure Controller	0-1500 Psi; 6-30 Psi Make Fisher
16	Oil Line	
	Line Size	2" , 3" and 3" Bypass
	Turbine Meter(NuFlo Type)	1.5" Range (515-6000 BPD)
		3" Range (2750-27500 BPD)
	Y Strainer	3" and 2"
	Control valve	3" LCV- Fisher with 3" Bypass
	Outlet Check Valve	4" Wafer Type on 3" Line
17	Water Line	
	Line Size	2" and 2" Bypass
	Turbine Meter(NuFlo type)	1.5" Range (515-6000 BPD)
	Y Strainer	2"
	Control Valve	2" Control Vlave and 2" Bypass
18	Drain Line	
	Size	2"Line with 2" Valve
19	Shirkage tester	
	Accessories	Level gauge
		Pressure Gauge & Temp Gauge
<b>DATA ACQUISITION</b>		
20	Wireless DAQ system	0-10K Pressre Transmitter- Choke Upsteam
		0-250 Deg F Temp Transmitter- Choke Upsteam
		0-250 Deg F Temp Transmitter- Gas Temp
		0-250 Deg F Temp Transmitter- Oil Temp

		0-2500Psi Pressure Transmitter- Separator Pressure
		0-692" WC Differential Transmitter- Gas 6"
		0-692" WC Differential Transmitter- Gas 2"
		3" Turbine Sensor – Oil
		1.5" Tubine Sensor –Oil
		1.5" Turbine Sensor –Water
		0-10K Pressre Transmitter- Spare
		0-250 Deg F Temp Transmitter- Spare
21	Ball valves	All ball valves on the unit Baloon type
22	Loss piping &crossovers	Complete sets of 3" fig 602 piping with different length including 90 deg Elbows.
		Complete sets of certified cross overs and flanges

### 3.1. Organization Chart

#### Organization Chart of IESCO



**Services Provided**

**ENGINEERING & CONSTRUCTION**  
 Front End Engineering (FEED)  
 Engineering Procurement Construction (EPC)  
 Engineering Procurement Construction Installation (EPCI)  
 Engineering Procurement Installation Commissioning (EPIC)  
 Project Management Consultant (PMC)

**ROTATING EQUIPMENT**  
 Compressors  
 Gas and Steam Turbines  
 Pumping Equipment

**TECHNICAL STUDIES**  
 Reservoir Simulation  
 Material Balance Studies  
 Enhanced Oil Recovery Analysis  
 Production Testing Analysis

For more information on any of our products or services please visit us on the Web at: [www.iesco.com.ly](http://www.iesco.com.ly)

## Integrated Energy Service Company

Your partner to the Libyan E&P Market

### Corporate Structure



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graph TD
    A[IESCO] --> B[BOARD OF DIRECTORS]
    B --> C[Chief Executive Officer]
    C --> D[Exploration & Production Consultant Manager]
    C --> E[Oil Log & Services Manager]
    C --> F[Engineering & Construction Manager]
    C --> G[Operations Manager]
    D --> H[Exploration Team]
    D --> I[Production Support Team]
    E --> J[Oil Field Services Team]
    F --> K[PE Team]
    F --> L[Design Support Team]
    G --> M[Senior]
    G --> N[ ]
    G --> O[ ]
    G --> P[ ]
    
```

### Contact Us

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 +218 214814258

 [info@iesco.com.ly](mailto:info@iesco.com.ly)

 [www.iesco.com.ly](http://www.iesco.com.ly)

 Reem Elbawadi Admin Centre  
 3rd Floor - Suite 232.  
 Gargareh Road - Tripoli Libya

### CONFERENCES

**IESCO is Sponsoring 3rd New Libya Oil & Gas Forum London on 29th-30th May 2014.**

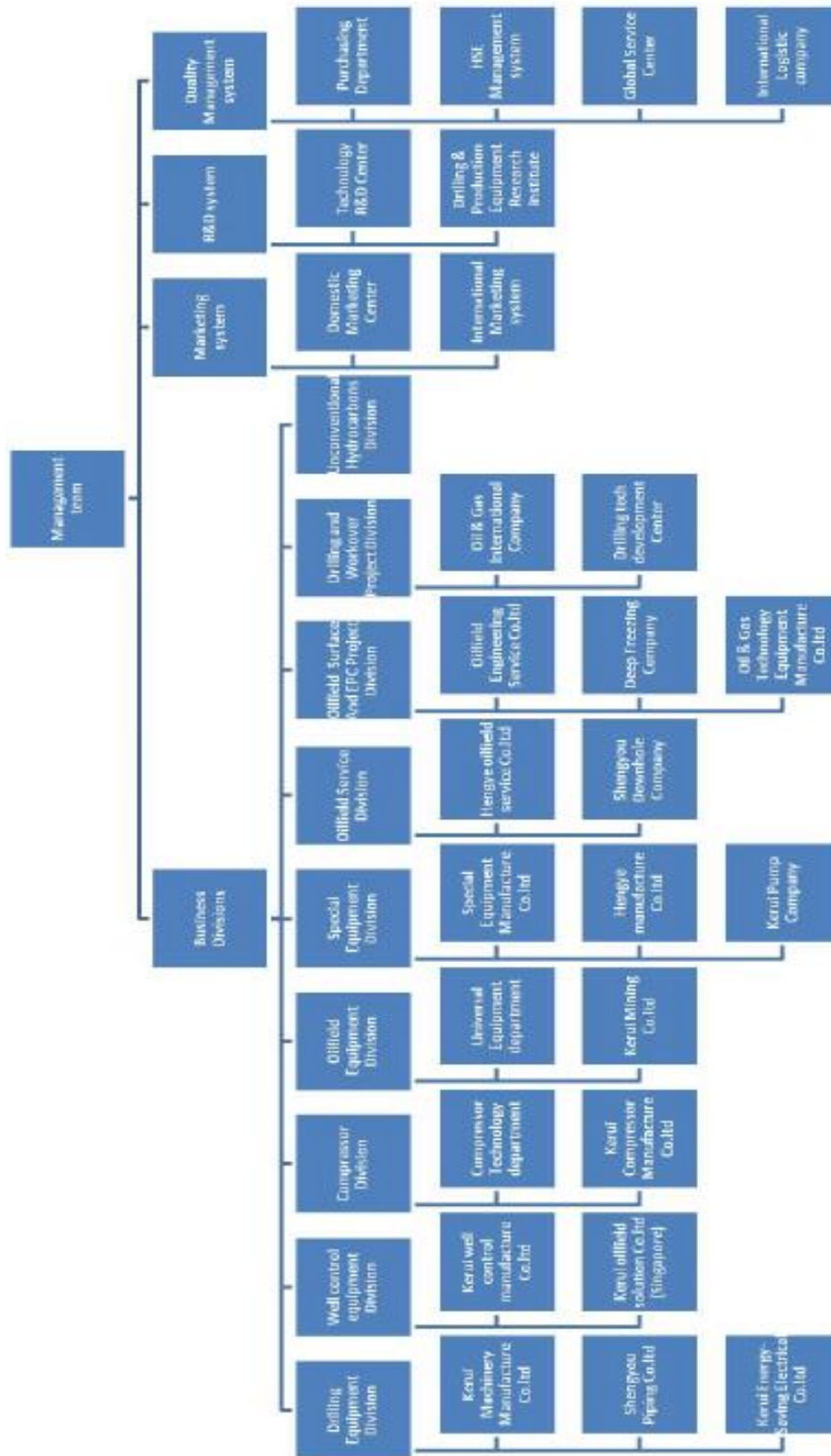




Technology Partners  
Libya



# Organization Chart of KERUI



### 3.3. Workload List

S/N	CLIENT	EQUIPMENT MODEL	QTY	LOCATION	PROJECT DESCRIPTION	CURRENT SITUATION
1	Sagiz Petroleum	350hp Workover Rig	2sets	Kazakhstan	Mainly engaged in oil well pump inspection, testing, sand washing, find leakage, perforating find channeling, sand control, old well production, cement plug, abandoned Wells and other assignments.	Total 300 Wells, project completion.
		250hp Workover Rig	3sets			
2	Genting	750hp Workover Rig	1set	Indonesia	Mainly engaged in the recovery of oil and water Wells is a complex, take in set, sidetracking, water plugging, cement plug, etc.	30 Wells have been completed.
3	Genting	2000hp Drilling Rig	1set	Indonesia	Main works including drilling, drilling fluid service, cementing, mud logging, completion, well testing, casing running, directional drilling, mud service, fishing, coring.	3 wells has been completed.
		3000hp Drilling Rig	1set			
4	Emerald Energy	750hp Drilling Rig	1set	Columbia	Main works including drilling, cementing, mud logging, completion, well testing, casing running, directional drilling, drilling fluid service, fishing service and so on.	13 wells has been completed.
5	Mansarovar	750hp Drilling Rig	1set	Columbia	Main works including drilling, casing running, directional drilling, drilling fluid, fishing service and so on.	12 wells has been completed.

6	Sinopec	1500hp Drilling Rig	3sets	China	Main works including drilling, cementing, mud logging, completion, casing running, directional drilling, and drilling fluid service.	8 wells has been completed.
7	Sinopec	1000hp Drilling Rig	1set	China	Main works including drilling, cementing, coring, drilling fluid service, casing running, directional drilling, completion.	2 wells has been completed.
8	CNPC	650hp Workover Rig	1set	Algeria	Mainly engaged in oil well pump inspection, testing, sand washing, find leakage, perforating find channeling, sand control, old well production, cement plug, abandoned Wells and other assignments.	In the form a complete set of equipment.

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## Section 4 Signatory Company and Company Representative / Parent Company

### 4.1. Power of Attorney

#### Power of Attorney of KERUI



#### Shandong Kerui Petroleum Equipment Co., Ltd.

Address: No. 233 Nan Er Road, Dongying, Shandong, PRC 257000  
E-mail: sales@keruigroup.com, web: http://www.keruigroup.com  
Tel: +86-546-8179682 Fax: +86-546-8179681

Date: 2014/11/24

#### AUTHORITY LETTER

To whom it may concern:

We, Shandong Kerui Petroleum Equipment Co., Ltd., the largest manufacturer and service provider of oil and gas equipments in China, is a comprehensive industrial group integrating high-end petroleum equipment research, development and manufacture, integrated oilfield engineering technological service, and oilfield EPC turnkey contracting.

Integrated Energy Service Co is our product agent in Libya, and we have cooperated several times in Libya involving drilling equipment and drilling & workover contracting and so on.

Now we hereby authorize Integrated Energy Service Co. as our partner and representative to submit tender books on our behalf. We conform to provide high quality equipment and good service according to the requirement of tenders and we will supply all the technical support during the operation.



Thanking you in anticipation!

Yours faithfully,

For  
Shandong Kerui Petroleum Equipment Co., Ltd



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5.3. Drilling Permit/License



SHANDONG KERUI  
INTERNATIONAL OIL & GAS  
ENGINEERING CO, LTD

is a Contractor member  
in good standing.

International Association  
of Drilling Contractors  
2014



中经认证

No: 04413S10322R1M

OCCUPATIONAL HEALTH AND SAFETY  
MANAGEMENT SYSTEM CERTIFICATION

Certificate

This is to certify the occupational health and safety management system of

**SHANDONG KERUI  
INTERNATIONAL OIL & GAS ENGINEERING CO., LTD.**  
REG. / AUDIT ADD: NO.9 ROAD, SHENGLI INDUSTRIAL ZONE, NAN'ER ROAD, DONGYING  
DISTRICT, DONGYING CITY, SHANDONG PROVINCE

is in conformity with

**GB/T 28001-2011 standard**

The certificate is valid for the following scope:

**OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT ACTIVITIES OF  
OILFIELD DOWN-HOLE OPERATION, PETROLEUM WELL DRILLING  
ENGINEERING AND THE RELATED TECHNICAL SERVICES**

Issue Date: 2013-08-02

Expiry Date: 2016-08-01

Within the certificate validity, the organization must pass the annual surveillance audit and get the mark before the prescribed date. The certificate is valid ONLY if the mark is present since the first surveillance audit.

Remarks: Provisions for the use of certificate in accordance with the last edition of Certificate and Certification Mark Rules in Certification Rules of ZJQC.

Beijing Zhongjing Quality Certification Co., Ltd.

General Manager:

The first  
surveillance  
audit

The second  
surveillance  
audit

The third  
surveillance  
audit

Date:

2013-08-02



MANAGEMENT SYSTEM  
CNAS C044-S

Address, 5/F, South Building, Guoyi Hotel, No.1, Wenxing East Street, Xicheng District, Beijing, China  
To verify the certificate validity, please browse our website <http://www.zjqc.com>



中经认证

No: 04413E10412R1M

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATION

Certificate

This is to certify the environmental system of

SHANDONG KERUI INTERNATIONAL OIL & GAS ENGINEERING CO., LTD. REG. / AUDIT ADD: NO.9 ROAD, SHENGLI INDUSTRIAL ZONE, NAN'ER ROAD, DONGYING DISTRICT, DONGYING CITY, SHANDONG PROVINCE

is in conformity with GB/T 24001-2004/ISO 14001 : 2004 standard

The certificate is valid for the following scope:

ENVIRONMENTAL MANAGEMENT ACTIVITIES OF OILFIELD DOWN-HOLE OPERATION, PETROLEUM WELL DRILLING ENGINEERING AND THE RELATED TECHNICAL SERVICES

Issue Date: 2013-08-02

Expiry Date: 2016-08-01

Within the certificate validity, the organization must pass the annual surveillance audit and get the mark before the prescribed date. The certificate is valid ONLY if the mark is present since the first surveillance audit.

Remarks: Provisions for the use of certificate in accordance with the last edition of Certificate and Certification Mark Rules in Certification Rules of ZJQC.

Beijing Zhongjing Quality Certification Co., Ltd.

General Manager:

Handwritten signature of the General Manager

Date: 2013-08-02

The first surveillance audit

The second surveillance audit

The third surveillance audit



MANAGEMENT SYSTEM CNAS C044 - E





中经认证

No: 04413Q10988R1M

QUALITY MANAGEMENT SYSTEM CERTIFICATION

Certificate

This is to certify the quality management system of

SHANDONG KERUI INTERNATIONAL OIL & GAS ENGINEERING CO., LTD. REG. / AUDIT ADD: NO.9 ROAD, SHENGLI INDUSTRIAL ZONE, NAN'ER ROAD, DONGYING DISTRICT, DONGYING CITY, SHANDONG PROVINCE

is in conformity with

GB/T 19001-2008/ISO 9001:2008 standard

The certificate is valid for the following scope:

OILFIELD DOWN-HOLE OPERATION, PETROLEUM WELL DRILLING ENGINEERING AND THE RELATED TECHNICAL SERVICES

Issue Date: 2013-08-02

Expiry Date: 2016-08-01

Within the certificate validity, the organization must pass the annual surveillance audit and get the mark before the prescribed date. The certificate is valid ONLY if the mark is present since the first surveillance audit.

Remarks: Provisions for the use of certificate in accordance with the last edition of Certificate and Certification Mark Rules in Certification Rules of ZJQC.

Beijing Zhongjing Quality Certification Co., Ltd.

General Manager:

Handwritten signature and initials

Date: 2013-08-02

The first surveillance audit

The second surveillance audit

The third surveillance audit



MANAGEMENT SYSTEM CNAS C044-Q







中经认证

No: 04413HS0035R1M

# HEALTH SAFETY & ENVIRONMENTAL MANAGEMENT SYSTEM (HSES) CERTIFICATION

## Certificate

This is to certify the health safety and environmental management system of

**SHANDONG KERUI  
INTERNATIONAL OIL & GAS ENGINEERING CO., LTD.**  
REG. / AUDIT ADD: NO.9 ROAD, SHENGLI INDUSTRIAL ZONE, NAN'ER ROAD, DONGYING  
DISTRICT, DONGYING CITY, SHANDONG PROVINCE

is in conformity with

**SY/T 6276-2010 Standard (Q/SY 1002.1-2007 Standard)**

The health safety & environmental management system covers the following product(s)/service(s)/process(es)/site(s)  
**HEALTH, SAFETY & ENVIRONMENTAL (HSE) MANAGEMENT ACTIVITIES OF  
OILFIELD DOWN-HOLE OPERATION, PETROLEUM WELL DRILLING  
ENGINEERING AND THE RELATED TECHNICAL SERVICES**

Issue Date: 2013-08-02

Expiry Date: 2016-08-01

Within the certificate validity, the organization must pass the annual surveillance audit and get the mark before the prescribed date. The certificate is valid ONLY if the mark is present since the first surveillance audit.

Remarks: Provisions for the use of certificate in accordance with the last edition of Certificate and Certification Mark Rules in Certification Rules of ZJQC.

Beijing Zhongjing Quality Certification Co., Ltd.

General Manager:

Date: 2013-08-02

The first  
surveillance  
audit

The second  
surveillance  
audit

The third  
surveillance  
audit



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# DET NORSKE VERITAS

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## MANAGEMENT SYSTEM CERTIFICATE

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Master Certificate No. 34637-2008-AQ-RGC-RvA

*This is to certify that*

### **Shandong Kerui Petroleum Equipment Co., Ltd.**

Register Address: Kesan Road, Shengli Industrial Park, Dongying City, Shandong Province, 257067, P.R. China  
(Locations as on the Appendix)

*has been found to conform to the Management System Standard:*

**ISO 9001:2008**

*This Certificate is valid for the following product or service ranges:*

**Design, Manufacture and Service of Pumping Units, Nitrogen Unit,  
Drilling Rigs and Associated Equipment**

*Initial Certification date:*  
August 27<sup>th</sup>, 2008

*Place and date:*  
Shanghai, August 17<sup>th</sup>, 2011


*This Certificate is valid until:*  
August 27<sup>th</sup>, 2014

*for the Accredited Unit:*  
DNV CERTIFICATION B.V.,  
THE NETHERLANDS

*The audit has been performed under the  
supervision of*

Shi Ya Jie  
Lead Auditor



  
Chen Yi  
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

DET NORSKE VERITAS CERTIFICATION B.V. Zwolseweg 1, 2994 LB Barendrecht, The Netherlands, TEL: +31 10 2922 688 - www.dnv.com / www.dnv.nl



# DNV BUSINESS ASSURANCE MANAGEMENT SYSTEM CERTIFICATE

Certificate No. 127271-2012-AE-RGC-RvA

*This is to certify that*

## **Shandong Kerui Petroleum Equipment Co., Ltd.**

Register Address: Kesan Road, Shengli Industrial Park, Dongying City, Shandong Province, 257067, P.R. China  
(Locations as on the Appendix 1)

*has been found to conform to the Management System Standard:*

**ISO 14001:2004**

*This Certificate is valid for the following product or service ranges:*

**Design, Manufacture and Service of Pumping Units, Nitrogen Unit,  
Drilling Rigs and Associated Equipment**

*Initial Certification date:*  
December 31<sup>st</sup>, 2012

*Place and date:*  
Shanghai, January 5<sup>th</sup>, 2013

*This Certificate is valid until:*  
December 31<sup>st</sup>, 2015

*for the Accredited Unit:*  
DNV CERTIFICATION B.V.,  
THE NETHERLANDS

*The audit has been performed under the  
supervision of*

**Shi Ya Jie**  
Lead Auditor



  
**Chen Yi**  
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

ACCREDITED UNIT: DEY NORSKE VERITAS CERTIFICATION B.V., ZWOLSEWEG 1, 2994 LB, BARENDRECHT, THE NETHERLANDS, TEL: +31 (0) 10 2922600, WWW.DNVBA.COM



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# DNV BUSINESS ASSURANCE

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# MANAGEMENT SYSTEM CERTIFICATE

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Certificate No. 127263-2012-HSO-RGC-DNV

*This is to certify that  
The Occupational Health and Safety Management System  
of*

**Shandong Kerui Petroleum Equipment Co., Ltd.**

Register Address: Kesan Road, Shengli Industrial Park, Dongying City, Shandong Province, 257067, P.R. China  
(Locations as on the Appendix 1)

*has been found to conform to the Management System Standard:*

**OHSAS 18001: 2007**

*This Certificate is valid for the following product or service ranges:*

**Design, Manufacture and Service of Pumping Units, Nitrogen Unit,  
Drilling Rigs and Associated Equipment**

*Initial Certification date:*  
December 31<sup>st</sup>, 2012

*Place and date:*  
Shanghai, January 4<sup>th</sup>, 2013

*This Certificate is valid until:*  
December 31<sup>st</sup>, 2015

*for Det Norske Veritas*

*The audit has been performed under the  
supervision of*

**Shi Ya Jie**  
*Lead Auditor*

  
**Chen Yi**  
*Management Representative*

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

DET NORSKE VERITAS House No. 9, 1591 Hong Qiao Road, Shanghai 200336, P.R. China, TEL: +86 21 3208 4518, FAX: +86 21 6278 8090



REGISTRATION NO. **Q1-0423**

# Certificate of Registration

The American Petroleum Institute certifies that the quality management system of

**SHANDONG KERUI PETROLEUM EQUIPMENT CO., LTD.**  
**#233, No. 2 South Road**  
**Dongying City, Shandong**  
**People's Republic of China**

has been assessed by the American Petroleum Institute and found to be in conformance with the following:

## API Specification Q1

The scope of this registration and the approved quality management system applies to the:

**Design, Manufacture and Service of Masts, Crown Block Assemblies, Substructures and Related Oilfield Equipment**

API approves the organization's justification for excluding:

**No Exclusions Identified as Applicable**



**Effective Date: June 22, 2012**  
**Expiration Date: June 22, 2015**  
**Registered Since: March 19, 2007**

*W. Dan Whittaker*  
Manager of Operations, APIQR

This certificate is valid for the period specified herein. The registered organization must continually meet all requirements of API Spec Q1, *Specification for Quality Programs for the Petroleum, Petrochemical and Natural Gas Industry*, and the requirements of the Registration Agreement. Registration is maintained and regularly monitored through annual full system audits. This certificate has been issued from API offices located at 1220 L Street, N.W., Washington, D.C. 20005-4070, U.S.A., it is the property of API, and must be returned upon request. To verify the authenticity of this certificate, go to [www.api.org/compositelist](http://www.api.org/compositelist).



REGISTRATION NO. **TS-0235**

# Certificate of Registration

The American Petroleum Institute certifies that the quality management system of

**SHANDONG KERUI PETROLEUM EQUIPMENT CO., LTD.**  
**#233, No. 2 South Road**  
**Dongying City, Shandong**  
**People's Republic of China**

has been assessed by the American Petroleum Institute and found to be in compliance with the following:

## ISO/TS 29001

The scope of this registration and the approved quality management system applies to the:

**Design, Manufacture and Service of Masts, Crown Block Assemblies, Substructures and Related Oilfield Equipment**

API approves the organization's justification for excluding:

**No Exclusions Identified as Applicable**



**Effective Date: June 22, 2012**  
**Expiration Date: June 22, 2015**  
**Registered Since: March 19, 2007**

*W. Dan Whittaker*  
Manager of Operations, APIQR

This certificate is valid for the period specified herein. The registered organization must continually meet all requirements of ISO/TS 29001, *Petroleum, Petrochemical and Natural Gas Industry – Sector Specific Quality Management Systems*, and the requirements of the Registration Agreement. Registration is maintained and regularly monitored through annual full system audits. This certificate has been issued from API offices located at 1220 L Street, N.W., Washington, D.C. 20005-4070, U.S.A., it is the property of API, and must be returned upon request. To verify the authenticity of this certificate, go to [www.api.org/compositelist](http://www.api.org/compositelist).

**Appendix A : IESCO-01**

**1500HP (ZJ50DB)**

**Drilling Rig**



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items	Reformed Specification	Qty
<b>A - GENERAL</b>		
1	Safety Zones All equipment will be certified to be used in accordance with safety zones.	
2	Illumination The rig location will be provided with illumination including fluorescent lamp(2X36w) and project lamp (400w) in all working areas and in all storage areas. Lighting (permanent or temporary) can be sufficient to allow rigging up and down at night.	
3	Electrical safety electrical EQUIPMENT comply with latest standards including but not limited to: - HSE Standard, - Electrical Engineering Guidelines, - Packaged Unit AC Generator, - Low Voltage Switchgear and Control Gear Assemblies. - API RP-500	
4	Handrails All working areas above ground level will have rigid handrails and kicker plates. All handrails to be 1.07m high, fitted with 2 rails and a kicking board. Handrails and all floor penetrations on the drill floor should be plated in where a risk of falling tools exist	
5	Rig Unit Certification for all Rig components must meet the applicable requirements of API, ISO, ANSI, ASME. All Rig components will be brand new, free of any kind of defects. The Rig must be designed for frequent, fast moving, and flexible rig packages. Moving gears (Desert Dolly's) to enable the Rig to move on standing position one load, also to move the Mast complete on laying position one load and the sub base assembly complete one load. The entire drilling package will be designed to achieve a minimum number of loads, minimum flat rig move time. Lay out such that items of rig equipment can be moved in/out in any sequence. Nothing should have to wait on the replacement of other items. All parts of the rig shall be equipped with the appropriate lifting eyes and/or other certified lifting tools that will assure safe assembly and transportation of the drilling unit. Main parts of the rig shall be appropriately stenciled with the weight of the load <b>Ambient temperature: -20--+55°C</b>	
	Designed and Manufactured In accordance to API 4F and API Standard References. Mast nominal capacity 1,000,000 lbs, clear height will be enough for safely tripping and racking triples of range-2 drill pipe, with the top drive, 148ft. Static hook load capacity 1,000,000 lbs (with maximum of 12 lines string up and two laps on the drum).Nominal drilling depth: 4500-7000m ( 4-1/2"DP); Expatriation: Max. hook load: 4500KN(6*7 strand); Effective height: 45.46m ; Height of racking platform:24.5m、25.5m、26.5m ; Top span(front x side): 2.5mX 2.2m; Bottom span(front x side): 10m ; Without stand and without load capacity: wind speed 38.6m/s; Full stand and without load capacity: wind speed 30.7m/s; Raising up and lower down mast: wind speed 16.5m/s;	1set
	a) Racking platform, fitted with 'fall arrestor', and with locks on fingers, able to accommodate of 5824m 5 1/2" drill pipe, 4 stands 10" and 6 stands 8" drill collar, Fall arrestor: SALA Serial No.: 3403400; one Rope length: 15m C/w:Safety belt: 1102950; large hook: 2000114; Fixed lariat: 5900550; Shock safety rope: 1244412	





## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items	Reformed Specification	Qty
6  Mast	<p>b) Air winch at racking platform level to aid the racking of drill pipe, heavy wall drill pipe and drill collars up to 9 1/2".            Expatiation: Air winch on racking board .JQH-5X48.            Air pressure: 0.8MPa            Max. lift capacity: 0.5T            Max. rope speed: 48m/min            Rope capacity: 60m,            Wire rope diameter: Ø8mm(5/16") x 30m</p>	1 pc
	<p>c) Adjustable casing stabbing board for range 2 &amp; 3 tubular, air powered, have a third party DNV certification.            The stabbing board will be fitted with a belly belt, "fall Arrestor", emergency stop and appropriate controls of the "stabber"            Expatiation: QFT200-8 .Max.load: 200kg;            max.the raising distance: 8m(26.3 ft).</p>	1 set
	<p>e) Ladders with safety cages and rest platforms. One climbing safety devices available for derrick man. One set of SALA derrick man fall arrestor device on crown block.            Dyna-Lock: When falling speed gets to 1.4m/s, the unit will act self-locking function; maximum brake force and brake distance: when 34-140kg, about 408kg, brake distance is 56cm; when 140-180kg, about 817kg, brake distance is 1.4m            Fall arrestor: SALA Serial No.: 3400610            Rope length: 53m(174ft)            C/w: Safety belt: 1102950; large hook: 2000114; Fixed lariat: 5900550; Shock safety rope: 1244412</p>	1 set
	<p>f) Four counterbalance systems; two for the rotary tongs and one each for the pipe spinning tong and inside BOP.            Expatiation: Four counterbalance systems</p>	4 pcs
	<p>Expatiation: RG10D. Escape device complete with 1/2" steel cable.</p>	1 set
	<p>h) Fastline Stabilizer.</p>	1 set
	<p>i) Deadline protector</p>	2 set
	<p>j) Wind sock</p>	1 pc
	<p>k) Communication system, explosion-proof, between Derrick man and Driller.            Expatiation: GP328, MOTO interphone, Maximum distance calls: 2 km, Communication Channels: 16</p>	2 pcs
	<p>l) Camera for driller to watch fingerboard.</p>	1 set
	<p>m) All hinged parts (including snatch blocks) in the derrick secured with safety slings.</p>	
	<p>n) Grease manifold(s) for sheaves and other hoisting equipment in the mast, which cannot easily be reached for maintenance.            Expatiation: grease guns.</p>	1 set
	<p>p) Aviation lights / beacon.</p>	1 set
	<p>q) Appropriate access platforms for TDS service loop connections and TDS cooling system.</p>	
<p>r) Two standpipes, 4" ID, 5000 psi WP.</p>	2 pc	
<p>s) Sufficient Lighting in the mast (power: 2x36w and 400w).</p>		



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items	Reformed Specification	Qty
	t) Maximum hook load for drilling operations according to API hoisting safety factor of 3.	
	u) Maximum hook load for casing running operations according to API hoisting safety factor of 2.	
	v) 20 mT pad eye for logging sheaves on the bottom of the water table.	1 set
	w) TDS hang off line, complete with and sufficiently rated pad eye on the water table.	1 set
	x) remarks: all lightning must be explosion proof, all electric cable, to drill floor area is cabel tray(foldable type); to mast, like lighting cable is in tube or small cable tray; cables for camera on mast with 100*100 metal cable tray; TDS cable is provided by TDS manufacturer.	
	Expatriation:Mast transpotion device:Steel structure; using for supporting and protecting five main mast structure sections when transporting.	1 set
	Expatriation:hoisting line.diameter:Ø80mm(3 1/8")	1 set
7	<p>Designed and Manufactured In accordance to API 4F and API Standard References.</p> <p>One set of substructures with flooring having sufficient clear height to permit easy installation of furnished BOP stacks and wellhead equipment with sufficient room for installation of an RCH, RBOP or emergency hangers</p> <p>Minimum clear height below the rotary beams is 30 ft.</p> <p>Substructure footprint will be capable of straddling a standard designed cellar with a minimum of 5m x 2.5m separation between substructure beams so as to clear the external walls of the designed cellar.</p> <p>Rig must back-up facing the long dimension of the cellar</p> <p>Substructure design will be such that it does not interfere with the installation/operation of the BOP when the BOP is set at the standard height.</p> <p>Expatriation: DZ450/10.5</p> <p>Drill floor height: 11m;</p> <p>Drill floor area:13.9m×12.65m;</p> <p>Clear height(rotary beam to ground): 9.5m;</p> <p>Rotary beam load :4500kN;</p> <p>Setback rated capacity :2200KN;</p> <p>Setback capacity 4-1/2" 28 m stand: 7000m</p>	1 set
	a) Set back capacity of substructure (485,000lbs) 2200kN Simultaneous capacity (485,000lbs) 220T set back & (1 000 000 lbs) 450 T rotary table load.	
	c) Setback trays will be provided to collect and control mud draining from set back tubular.	
	d) Dedicated man-riding winch. Expatriation:FA150KGiMR12A1-A-CE. with 330 ft length of 3/8 inches wire rope Specifications: 150kg lift capacity, automatic brake, overload protection, manual spooling device, silencer, air preparation package(filter, regulator, lubricator).	1 set



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
		e) Access walkway for flow line / bell nipple and BOP. BOP trolley to be provided for safe handling of complete 10K, 13 3/8" BOP, 4-ram cavity stack with 5K annular. BOP trolley is capable to install 21 1/4" diverter system. Trolley beams for BOP and associated hoisting equipment will be certified. Expatiation: FY-50Y,2×250KN	1 set
		"Drip Pan" covering set back and rotary table area to prevent spillage of drilling mud and other fluids into the sub base area	1 set
		l)) Rotary table non-slip matting, covering rotary table.	1 set
		m) Pad eye 25 metric ton rating flush with drill floor complete with trip cover at entrance of the V-door for tie-down of wire line logging sheave.	1 set
		n) Camera for driller to observe wellhead area under drill floor.	1 set
8	Mouse&rat hole	Mouse&rat hole c/w shock absorber and spacers for short joints complete with mud collection system, routed to the cellar.	1 set
9	Drawworks	Designed and Manufactured In accordance to API 7K and API Standard References One electric single drum Drawworks, rated for 1500 HP input power driven by adequate electric motor. Air intakes for motors to be outside zone 2 area. Disk brakes. Expatiation: 2-gear gear box Rated input power: 1120KW, Max.fastline pulling force: 340KN, Wireline Dia.:Ø35mm Drum size: Ø685×1428mm Main brake (disk brake): PS165/3150D.Working brake torque: 165kN.m Stop brake torque: 85KN.m Emergency Brake torque: 250kN.m. Disc brake hydraulic station: Rated flow of single pump:15 L/min Oil tank capacity:90 L Electric motor power:2 x 3 kW Input voltage of electric motor:380 V Output frequency of electric motor:50 Hz Power accumulator :4x6.3 L Power of electric heater:1 kW	1 set
		AC motor: YJ31 AC Rated power: 720KW Rated pressure: 600V Rated rotating speed: 600rpm	2 pcs
		a) Make-up and break-out cat heads. Make up cathead line pull 13,000 lbs (7000 lbs minimum) Break out cathead line pull 18,000 lbs (14,000 lbs minimum). Expatiation: Hydraulic power cathead.YM-16B.Rated working pressure:16Mpa; Rated flow rate:90L/min; Wireline pulling force:160KN; Effective stroke:1200mm; Control handle in the driller cabin, remote control by the electric valve.	1 set



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
		b)Dynamic braking:Consist of 6 Pbr=298kW noninductive brake resistance, each one composes dynamic braking circuit with one braking unit. There are 6 dynamic braking circuits in all.	
		c) Crown block safety device (adjustable Crown-o-matic type ) traveling block height range: 0—60m; Traveling block moving speed range: 0—9.99m/second tolerance: height<0.2m,temperature: -30℃~+60℃ relative humidity: 0~90%. Expatriation:	1 set
		e) pull with 12 lines (low clutch, low transmission).	
		f) Easy break out system capable of generating a minimum line pull of 20,000 lbs.	
		g) Rig tongs capable of making up all supplied drill string components and rated to a maximum torque of 100,000 ft-lb's	
10	Drillers position	Drillers position to have a protective cage providing protection from falling objects, the sun and rain. The cage should provide protection for instruments and controls, maintaining unrestricted view of drill floor, V-door and monkey board. All electric switchgear shall comply with latest standards on electrical equipment. And the whole driller's console meets National Standard second area anti-explosion certification  Climate control will be provided (heating/cooling).  Windows will be shatter proof.	1 set
11	Crown Block	Designed and Manufactured In accordance to API 8C and API Standard References. Crown block to be rated for the static hook load capacity of 1000000 lbs with 7 x 60" sheaves grooved for drilling line. Fitted with jumper bars such that no section of more than 100 deg of arc is unprotected from sheave cluster and fast line sheave. Entrance to crown block platform has self-closing gate. Crown block timbers installed with heavy duty wire mesh and secondary retention system. Expatriation: TC450 Max. load capacity: 4500KN; Sheave OD: .Ø1524mm(60"); Sheave No. 7pcs; Wireline Dia. Ø35mm (1-3/8").	1 set
12	Travelling Block & Hook	One travelling block-hook. Designed, manufactured and tested in accordance with API Spec 8C combination, 500 tons capacity with adequate number of sheaves grooved for drilling line, c/w: a) Spring assembly, b) Hook locking device. Expatriation: Travelling Block: YC450 Max.hook load :4500KN(500T); Sheave No.:6; Sheave OD.:Ø1524mm(60"); Wireline Dia.:. Ø35mm (1-3/8"). Hook: DG450 Max.hook load:4500KN(500T); Opening size of hook mouth:220mm; Main hook mouth Dia.:180mm; Auxiliary hook mouth Dia. :120mm	each 1 set



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
13	Swivel with kelly spinner	XSL450.Max.static load: 4500KN; Max. working pressure: 35MPa; Central pipe Dia.:75mm; Connector thread : connecting 6-5/8"REG-LH with Kelly; Max. rotating speed:300rpm;	1 set
14	Elevator link	DH500.Rated hook load:4500KN L=3600mm	1 set
15	TDS	TESCO: 500 ESI 1000 Max. working pressure: 35Mpa 600VAC/50Hz Hook load: 500T(454T) Rated power: 500HP×2	1 set
16	TDS Inside BOP Valves	Designed, built and manufactured in accordance with API Spec 7 Class 2 and NACE MR-01-75 latest editions	1 set
17	Drilling line	One drilling line φ35 6×19S+IWRC-EIPS PF RL; Length: 7,500ft	7,500ft
		Drilling line size will be of adequate size for the expected loads.	
		Drilling line will be spooled on a power driven steel drum. Electric drill spooler: DDS-15/4-Y; Rated voltage: 380V/50HZ; Output rotating speed: 4rpm; Rated output torque: 13000N.m; Motor power: 7.5KW; Wireline Dia: φ11mm; Rope body rotating speed: 16rpm; Rope body torque: 2500N.m.	1 set
		Cover for drum ,without chain.	
		Support frame for drum.	
18	Deadline anchor	One dead line anchor for drilling line c/w a weight sensor. The deadline anchor is easily accessible for slipping and cutting operations. Expatriation: JZG41. Max. deadline pulling force: 410KN; 12 lines load capacity: 4920KN.	1 set
		a) Maximum opening size: 37 ½	1 set
		b) Static capacity: 500 metric tons	
		c) Drive type: Electric. Expatriation: YJ31 AC. Rated power: 720KW; Rater voltage: 600V; Rated rotating speed: 600rpm.	1 set
		d) Driven independent of rotary table	
		e) Rotary torque: 23867 ft.lbs	
		f) Rotation speed: 300 rpm	



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
19	Rotary table	g) One speed gearbox,withcardan shaft,etc.	1 set
		h) Air intakes for motor will be outside zone 2 area.	
		i) Split type Master bushing complete with bowl No: 1, 2 and 3. Expatiation: Split Bushing: 2 3/8"-8 5/8" , 9-5/8"-10-3/4" , 11-3/4"-13-3/8"	each 1set
		j) Rotary table master bushing recess in rotary table and master bushing meet to API standard to assure standard bit breakers can be used.	
		k) Pin type Kelly drive bushing.(For3 1/2" ,5 1/4"Kelly)	2 sets
		l) Rotary Kelly bushing and master bushing locks to allow back reaming.	
		n) Capable to freely rotate and to be lockable in both directions.	
		o) The rotary drive is fitted with an independent air operated brake.	1 set
20	Auxiliary Winches	Two drill floor mounted air winches. Mounting brackets and bolts to be certified. XJFH-5/35ZS.Air pressure :0.8MPa; Max. pulling force: 5T;Rope capacity :100m; Wireline Dia. :Ø20mm(3/4")	2 sets
		The winch is fitted with non-rotating wire. The maximum SWL of the winch is stipulated.	
		All pad eyes, snatch blocks and line used for air winches will exceed the maximum capacity of air winches. Allowance will be made for the force doubling effect on snatch blocks and pad eyes.	
21	Pipe racks	Set of pipe racks c/w catwalk(2 pcs) and walkways(1 set) with adequate capacity for 6,000 of 13 3/8"-72 lb./ft. Low relief (less than 1.2m high). Catwalk and pipe rack c/w means to prevent tubulars rolling off, 0.5 meter high. Pipe racks to be covered with wood when handling 13 CR tubing, Pipe racks to be inspected and certified by certifying authority. Catwalk and pipe rack for a height suitable for desert environment and in accordance with API 5C1	1 set
22	Rig service air system	The rig air system have compressors c/w dryers of sufficient capacity to operate e.g. the rig floor air winch and the drill pipe spinner continuously, whilst maintaining 120 psi minimum for other controls.	
		2 sets Screw type compressors Expatiation: LS12-50HH . Rated exhaust pressure:145psi(1MPa); Norminal displacement:5.6m3 /min.	2 sets
		- 1 set Refrigeration Dryer rated 6 m3/min. Expatiation:SRC-240, Norminal displacement:6.6m3 /min	1 set
		- Storage Tank minimum capacity 2m³×2pcs+3m³, vertical type, 2 pcs of 2m3 in generator house, 1 pc of 2.5m3 under the substructure area. ASME	1 set
		Power plant to be mounted on Trailer (s) for fast moving purposes. All electrical equipment is installed and operated in accordance with latest standard. - 4 ea Diesel Engines Caterpillar CAT3512B: 50Hz, 1310kw, 1500rpm - 4 ea Generators Caterpillar SR4B, kw 1020 each, power factor 600V, 50Hz, 0.7.	4 sets
		VFD/MCC SYSTEM	1 set
		Generator house	5 set



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
23	Rig Power plant	All electrical switches to be clearly labeled with functions, and be appropriate for external use and in accordance with I.P. code classification and provided with lock out, except for lighting switches.	
		All engines is fitted with desert radiators i.e. capable of operating continuously at ambient temperatures to ensure engine's normal working	
		All surface cables will be protected from UV light and oil based mud, and be adequately supported by cable trays. All underground cables and piping will be protected by steel cowling. Expatiation:Cable tray for oil,air and water pipeline	1 set
		Complete power system comprising of diesel driven generator sets supplying AC power (AC VFD system).	
		a) In the drilling mode sufficient power must be available to control and power simultaneously the mud pumps and rotary table both at full load and the draw works at half load with one diesel generator as standby..	
		b) AC generator sets of 1200. One generator set shall be capable of taking the peak demand, with a second as a 100% standby.	
		d) Separate (small) generator to provide temporary power to well site offices during rig moves through VFD system. MODEL: C15/400kw	1 set
		e) Emergency shutdown switches for the complete power system (AC VFD) will be provided at the driller's position and individual stop at generator (air intake shut off valves).	
		f) Provision for power supply for a mud logging unit with a typical power requirement of 380 volt line to line 3 phase 50 Hz 15 kVa.	
		g) Diesel engine plant is equipped with desert filters, spark arrestors, and mufflers. Air intake shut off valves should operate either from the driller's consol or from the power plant.	
h) Provide additional power for driving all centrifugal pumps, which might be used with an additional mud storage system.			
i) Provide additional power for: 2x mud coolers = 200 KW 1 x Vortex rotary dryer = 100 KW 3 x Centrifuges = 210 KW 1 x Liquid mud transfer pump = 56 KW 1 x Water storage transfer pump = 56 KW			
24	Emergency power	The power for emergency lamps come from AC generator. Expatiation: WellSite Ex-proof circuit and Lighting. Rated voltage: 380V/220V( 3 phase four-wire system); Rated frequency: 50Hz; Explosive-proof grade: available to use d II BT4 area.	1 set
		All lamps will be explosion proof, except for lamps in generator house, camps and VFD house in accordance with anti-explosion zone.	



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
25	Power Consumption Meters	This will be shown in the VFD system	
26	Communications system	A communication system between drill floor, tool pusher office, mud tanks, mud logging unit, mud engineer office, radio room, monkey board and VFD house Expatiation: <b>10 channel internal communication system (added 2 channels for Company Man Office and The Third Party Office)</b>	1 set
		This system can communicate with any handsets connected with the system. The driller's control cabin can centralized call all stations. ; Each station can realize conferenced communication.	
		The PA system will be audible all over the rig including all offices and the mud-logging unit with the exception of the generators.	
		Independent (battery) power supply to ensure operation of the communication/PA system for at least 12 hrs, during a "black-out" situation.	
27	Soft Torque Rotary System	TDS Soft Torque Rotary System:minimizes the tensional vibrations arriving up through the drill string during drilling.	1 set
<b>B - HIGH PRESSURE MUD SYSTEM</b>			
1		All components of the high pressure mud system must have a working pressure of at least 5000 psi and a test pressure of 7500 psi and be designed and constructed in accordance with ANSI B31.3, API 1104, API Spec 6A, ASME IX or equivalent standards. The High Pressure mud system must be capable to operate at a WP of 5000 psi for long sustained periods (ie. when turbo-drilling). All connections must be welded.	
		All components of the high pressure mud system must have a working pressure of at least 5000 psi and a test pressure of 7500 psi and be designed and constructed in accordance with ANSI B31.3, API 1104, API Spec 6A, ASME IX or equivalent standards. The High Pressure mud system must be capable to operate at a WP of 5000 psi for long sustained periods (ie. when turbo-drilling). All connections is welded. All components of the high pressure mud system will be compatible with the use of OIL BASED MUD.	
		All HP pipe work from mud pumps to swivel to have a ID of 4", and test pressure of 1.5 times the working pressure	
		Three single acting triplex pumps Both Mud Pumps to be mounted on low bed trailer for fast move purposes. Designed, built and manufactured in accordance with API Spec 7K and references.with skid ,pipe.etc Expatiation: F1600 Rated power rate: 1600HP; Rated stroke: 120Spm; Max. working pressure: 5000Psi ; Max. liner diameter: 7"; Min. liner diameter: 5" Suction inlet12" flange Discharge outlet 5 1/8" flange ;	3 sets
		a) Each equipped with an independently driven centrifugal charging pump,with skid, pipe.etc Expatiation:HCP8X6.Motor power: 55KW; Displacement : 250m3/h	3 sets





## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
2	Pumps	b) Each pump driven by electric motor with adequate power. Expatiation:YJ31 AC Rated power: 720KW; Rated voltage: 600V; Rated rotating speed :600rpm.	6 pcs
		c) Air intakes for all motors to be outside zone 2 area.	
		d) pump power rating 1600 HP	
		e) There wil have cooling system for pumps	
		f) forged steel fluid ends.	
		g) Quick change system for liners and pistons.	
		h) Quick change valve covers.	
		i) Cooling/lube system for liners	
		j) High pressure pulsation dampener.	
		k) 3" Reset relief valve, with discharge to active tank c/w flanged connections only (Retsco type C or equivalent). Relief line to be self-draining away from valve (2 deg slope). Discharge line to be straight and anchored properly.	3pc
		l) Suction and discharge filter c/w bleed off valves upstream of discharge strainer.	
		m) Covers over piston pots.	
		n) Full range of liners and pistons 7", 6-3/4", 6-1/2", 6-1/4", 6", 5-1/2", 5"	each 3pc
		o) No threaded connections allowed on any HP pipe work	
p) Drip tray contain spills			
3	Pump discharge lines	Three 4" ID 5000 psi WP mud pump discharge lines with 4" 5000 psi mud valves. All flexible hoses will be equipped with minimum 5/8" snubbing lines and c/w integral couplings. Separate line from each mud pump to the H-manifold. Flexible hoses will be designed	each 1pc
4	Standpipe	One 4" ID, 5000 psi WP standpipes with goosenecks connected to an H-type standpipe manifold.	1 set
		All connections will be chinese brand of the unions	
		Solid block instrumentation header to provide three (3) off-take points for sensors on each side of the H-manifold	
		Standpipe manifold c/w:	
		a) Pressure gauges and sensors for instrumentation and recorders	
		b) Kill line outlet.	
		c) Fill-up/bleed-off line outlet.	
		d) Two 2" outlets complete with hammer lug wing union connections	



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
		e) No threaded connections	
		f) Manifold to have an off take point for a chiksan at drill floor level in addition to the kill line and cellar line. This should be on the opposite side of the H-manifold from the main Kelly hose.	
		g) Standpipe manifold and pipe work allow pumping through the drill pipe with one pump and the annulus with the other pump (both pumps at maximum output)	
		h) Fitted with an outlet for MWD instrumentation and complete with a 2" gate valve.	
		I) Utility standpipe, 2" ID (min) with gooseneck, connected to standpipe manifold, constructed without threaded connections and designed for 10,000 psi working pressure, have sufficient height to enable reciprocation of casing string while cementing or for well killing operations.	
5	Rotary hose	Two 3 1/2" ID 5000 psi WP, 5000 psi TP rotary hoses complete Built as per to API 7K, with minimum 5/8" snubbing lines. Both hoses c/w integral connections (no LP threaded connections). One hose fitted in the derrick and one (new) hose spare on site. one 65ft for swivel, another 75ft for TDS.	2 sets
		One 2" ID, 5000 psi WP casing wash down hose 50 ft long. The wash down hose should have suitable cross-overs to allow it to be used from the spare standpipe connection.	1 set
6	Casing / drill pipe fill-up system	A 4" balanced, locomotive casing fill-up system, c/w strainer, connected to the low-pressure system, fed by one of the centrifugal pumps and a 4" valve at the rig floor.	1set
7	Chiksan steel hoses	60 ft of 2" nominal chiksan steel consisting of 6 ft to 10 ft straight sections with forged or welded ends only.	1 set
		8 chiksan , 2" nominal sweep swivels.	
		3 low-torque valves suitable for Fig 1502 chiksan.	
		Straight and swivel sections to be fitted with Weco fig 1502 hammer unions. Chiksans to meet API specifications . All hoses to be marked with stainless steel bands with the test pressure and date of test stamped in.	
		A fixed 2" HP cement line, 10000 psi working pressure, fitted with Fig 1502 connections, running up to the drill floor	
<b>C - LOW PRESSURE MUD</b>			
1		All mud, reserve and water tanks will be Mounted on wheels to maximize rig moving speed.	
		All components of the low pressure mud system to be compatible with the use of OIL BASED MUD.	
		Each mud tank mounted on low loader for fast move purposes.	7 sets
		Seven mud tanks with a total volume of 2548bbbls; Shale shaker tank: 352bbbls, intermediate tank: 346bbbls, suction tank: 327bbbls, reserve tank: 453bbbl*3,mixing tank 164bbbls;	
		Tanks to be shaped to match properly sized agitators (minimize dead areas). Suction manifolding at lowest point in tank. Must be able to pump from all active and pill tanks from either mud pump. Tank system drawing to be available containing inventory of all valves inside the system	



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items	Reformed Specification	Qty
2	Mud tank system (suitable for OBM and WBM)	
	Active tanks dimensioned to give at least 10cm level change for 6 bbls volume change	
	All tanks to be provided with dump valves and sloping bottoms which permit complete emptying of the tank to the waste pit. c/w sand gate. Minimum human intervention in cleaning the tanks required. Expatiation: Pipeline, valve, mud gun, connecting piece, etc.	
	All handles on the mud tanks will be clearly labeled with function and position. As-built isometric pipe work schematics must be placed on all mud tanks.	
	One settling tank of 100 bbls capacity with sloping bottom and one quick acting dump valve.	1 set
	One pill tank of 32bbls(5m <sup>3</sup> ) capacity. Zero dead volume.	1 set
	One trip tank minimum volume trip tank: 32 bbls c/w sand pump , with one ultrasonic level gauge, which can be shown in driller's control cabin. Sand pump: HCP4×3, motor power: 15kW, displacement: 80m <sup>3</sup> /h	1 set
	One separate stripping-in tank c/w equalizing facility with trip tank.	
	One chemical mixing tank of 164 bbls fitted with an agitator.	1 set
	Reserve mud tanks without any dead volume, fitted with agitators 500 bbls total capacity.	
	Mud agitator: HA-15. Motor power: 15KW, Impeller diameter: 44"(1118mm)	12pcs
	Mud agitator: HA-5.5; Motor powe: 5.5KW; Impeller diameter: 26"(660mm)	1 pc
	Mud tanks fitted with LP mud guns for rapid turnover / shearing of drilling fluids.	
	A high pressure shearing line shall be installed from one of the mud pumps, the discharge being routed via a common line directly into the main active and reserve mud tanks	
Isolation valves will be installed so as to be able to select one or both the specified tanks for mixing.		
Shearing pump: HSP6×5, Motor power: 75KW, displacement: 120m <sup>3</sup> /h. Mixing hopper: HJM-200, 200m <sup>3</sup> /h; bore of inlet, outlet: 6".	1 set	
All tanks (incl. reserve tanks) will have the possibility to be connected and disconnected to / from the active mud system by flow lines and valves.		
Both mud and mixing pump suction must be capable of sucking from either compartment of suction tank and all reserve tanks. Mud pumps must be capable of sucking from all reserve tanks.		
Mixing of chemicals in reserve tank and / or mixing in Active and Reserve simultaneously is required. Line diagram of the LP mud system showing tanks, mixing facilities and various treating systems to be submitted with bid.		
It is possible to mix in part of the reserve tank system whilst simultaneously transferring mud from elsewhere in the reserve system into the active system.		



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
		With one blower to minimize oil based mud vapor in areas above / around the shale shakers. Expatiation: Multiple stage blower: HTB100-304 (2.2KW) .	1 set
		All tanks will be covered by well secured grating and equipped with railings, handrails and stairways, properly secured and in good condition. Gratings must be secured such that it is not possible for misalignment to allow grating to tip up.	
3	Mud mixing system	Complete mud mixing system comprising two hoppers and two centrifugal pumps. System will be able to treat mud in the active system together with mixing a pill or reserve mud whilst not interfering with the mud pump and charging pump operation. Piping will be at least 6". Pump output 1200-1800 GPM at 60-40 psi with a maximum of 2.1 S.G mud. Expatiation: Mixing hopper:HJM-200.200m3/h; bore of inlet,outlet6". Mixing pump:HCP8X6.Motor power:75KW, displacement:255m3/h;	each 2 sets
		Pump drive: AC-100HP	
		All mud pumping / transfer pumps to be fitted (as a minimum) with oil based mud resistant seals (mechanical seals preferred), suitable for high temperature environment; more than 190 Deg F and drip trays to collect any mud from weeping drive shaft seals.	
		One of the mixing hoppers will be fitted with a big bag feed bin above it. The hopper is easily accessible by crane/forklift. Expatiation: big bag and one set of 2T anti-explosion electric hoist	2 pcs
		Emergency showers and eye wash stations must be installed (as a minimum) at all mixing areas, near the shakers and on the drill floor. Expatiation: combined type eye wash station,In emergency,the equipment can be used for washing eye and body.	3 sets
		Showers will be designed to recalculate water to prevent extreme water temperatures in the system during the summer and freezing in the winter.	
		The equipment will be of an approved design and fit for purpose.	
4	Shakers	Derrick DP626 double screen shale shaker, with 2×2.5Hp vibrationr motor c/w flat screens(China made) for spud-in: 80 meshes: 6pcs(18pcs in total with 3 setss) 100 meshes: 6pcs(18pcs in total with 3 setss)	3 sets
		(Solid Control Equipments) Installation Plan, OEM recommendations will be considered when installing and operating the shakers.	
		Common header tank for all shale shakers. Mud return flow lines will enter from the rear at the base of each shale shaker header tank	
		The header boxes will have dump chutes to the waste pit, to enable clearing of cuttings at high ROP's.	



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
5	Hydro cyclone equipment. Generally	Sufficient centrifugal pump capacity should be provided to deliver the required flow capacity to all items of hydro cyclone equipment at the hydrostatic head requirements specified by the individual equipment manufacturers. Feed and discharge lines shall be designed such that restrictions are minimized. Centrifugal feed pumps should be singular in purpose other than for the degasser which should be arrange so that it may be operated by another pump in a solids control or mud mixing system.	
6	Desander	Derrick Model: Stand Alone, 3-Cone Vertical Desander 3×10"; capacity: 1500gpm Feeding pump: TSC/HCP8×6 Power: 75kW; capacity: 255m³/h	1 set
		A pressure gauge (0-50 psi range), fitted with diaphragm seal below in order to prevent blocking of pressure gauge with solids, and will be installed on the feed inlet manifold.	
	Desilter	Derrick/Stand Alone, Inline 20-Cone Desilter 20×4"; Capacity: 1600gpm Feeding pump: TSC/HCP8×6 Motor pump: 75kW; capacity: 255m³/h	1 set
7	Mud cleaner	TSC/China HMC300x2/100x12-HS270-DP Desanding hydrocyclones: 300mm (12" ) ×2 Dealing capacity: 260 m3/h(1100GPM) Separation point: 43~74µm Desilting hydrocyclones: 100mm (4" ) ×12 Dealing capacity: 200 m3/h(880GPM) Separation point: 20~43 µm Shale shaker model: HS270-DP Motor: 2.2kW×2 Power: 380V/three phases/50Hz	1 set
		Capable of handling 100% of max. circ rate. Cone underflow (solids or liquids) may be taken as suction to a centrifuge. Inlet pipe work to have a clear straight run of at least 1m before inlet manifold of mud cleaner. Discharge into next compartment downstream of suction tank.	
		a minimum spare stock of two (2) full sets of "NEW" screens(China brand) per mud cleaner in three suitable sizes: for HMC300x2/100x12-HS270-DP mud cleaner	2 sets
8	Degasser	Sized to process up to 50% of maximum flow rate. ( fitted with vacuum pump). Pump suction from degasser tank, receiving degassed mud. Expatriation: Degasser, HV-1200; Displacement: 280~320m³/h; Vaccum degree: 280~450mmHg; Motor power of vaccum pump: 4KW. TSC centrifugal pump model HCP8x6 driven by explosion proof AC motor 75kw,	1 set
		Liquids from the degasser will discharge into a treatment tank which will be equipped with an adjustable high level equalization valve to the degasser tank	
		Gas will be connected to poor boy's venting pipeline through lines.	

## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
9	Mud-gas separator (poor-boy degasser)	Model: HLGS1200-1.0; One mud gas separator in. Minimum specification are:	1 set
		Vessel ID: 48 inch	
		Liquid seal height: 10 ft (minimum)	
		Vent line diameter: 8 inch	
		Pressure rating: 150 psi	
		Temperature rating: -20℃~40℃	
		Piping to be such that the degasser can be bypassed.	
		Discharge into the shaker header tank with bypass option.	
		Mud hot injection system to ensure liquid seal height is maintained during well control operations.	
		A low-pressure 15 psi gauge will be fitted to the base of the line from the choke manifold.	
		Temperature gauge will be fitted on the Mud Gas separator.	
		A 15 psi pressure gauge will be fitted on the bottom of the U-tube to monitor the liquid seal height.	
		The gauge readings will be easily visible for monitoring the proper operation of the MGS.	
		Light fittings and Accessories for Hazardous areas are to be china relevant departments Approved	
Lighting Supply:			
Vent line to be routed to the top of the derrick or run across the location to the waste pit without becoming a trip hazard			
Electric ignition device, model: YPD20/3.5	1 set		
10	Cellar jet/sump pump	Two submersible cellar jet pump: 20m <sup>3</sup> /h Model: DYB-100	2 sets
		Cellar jet will be capable of operating at the same time as pumping down the drill string. The option will exist to take returns either into the shaker header tank . Cellar jet system	
		c) One air operated cellar pump.	1 set
11	Mud saver bucket	Mud saver bucket for 3.1/2" and 5" drill pipe. Return of mud bucket to be routed to the trip tank Expatiation:FP-5.	1 set
12	Ditch magnet	One ditch magnet mounted horizontally at shaker box overflow , c/w suitable handling device / mechanism.	1 pc
13	Mud testing equipment	Set of mud testing equipment including 1 pressurized 'true- weight' mud balance, 1 API mud balance, 1 marsh funnel.	each 1sets
15	Drill water system	Each water tank to be mounted on low loader for fast move. 2 tanks 500 Bbls each. Water pump c/w piping, power supply, floating device to pump water from the water pit to the rig tanks. Expatiation: Each tank capacity: 80m <sup>3</sup> ,c/w two centrifugal pump HCP4" × 3" ×13, coupled with 15kw electric motor, 380V,50HZ,1500RPM, Explosion proof.	2 sets



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
16	High Pressure wash down guns	Two high pressure wash down guns, that can be fit on a barrel drum and used to clean the shaker screens.	2 pcs
17	High speed centrifuge	Model: LW355-1250N Rotating speed: 3200rpm Capacity: 40m3/h	1 set
<b>D - BLOW OUT PREVENTION SYSTEMYES</b>			
1	Remote control system	Remote control system, FKQ1280-8, China Brand. Total capacity of accumulator:80×16; available fluid volume: 640L, 8 control points.	1 set
		- Drillers control panel with indicating lights for the various functions.	
		- Additional remote control panel(s) required on a safe distance from the rig floor.	
		- System logic should ensure that when the diverter annular is closed, that the diverter line valve is open.	
		Diverter line ID 10", with ball valve (2pcs)	1 set
		Rated pressure 500 psi	
		The following specification apply to the control unit used for the 13 5/8" 10K and 21 1/4" 2K BOP:	
		- BOP operating system in line with API RP-53 standard.	
		- Minimum operating pressure 3000 psi.	
		Usable fluid in accumulators: Close rams + Ann, Open rams + Ann, Close PR, Close Ann. Calculations based on <u>rated working pressure of the preventers. Calculations to substantiate the number of accumulator bottles must be</u>	
		- Closing times of ram preventers and Annular within 30 seconds for 13 5/8" BOP stack.	
		- Reservoir size 2 times usable fluid.	
		- Manifold regulator TR5-type shall be fitted (remote controlled).	
		One driller's control panel (located on the rig floor) showing functions with controls for the following functions of the 13 5/8" stack: - bag type BOP: - three ram type BOP: - choke line valve c/w ;	
		Protection against falling objects.	
One additional remote control panel on a safe distance from the rig floor.			
The remote panel is to operate the main closing unit valves direct and not through the derrick floor unit so that should the latter be destroyed in case of a blow-out and fire the remote unit can still be used.			
Both control panels will show position of preventers and valves. Low reservoir level, low accumulator and low rig air pressure alarms must be installed. Air junction boxes between the main BOP control system and the control panels			
The main closing unit will be located in a safe area away from the cellar and derrick floor.			
All hoses to be in accordance with the API RP-53.			
2	Hydraulic BOP test pump	One hydraulic air operated 15,000 psi test pump c/w chart recorder, gauges, high pressure and low pressure hoses.	1 set



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
3	Coffex hose	High pressure fire resistant hose for BOP	1 set
<b>E - INSTRUMENTSYES</b>			
1	Driller's position	a) One anchor type weight indicator for the full rating of the derrick with 12 lines strung.	1 set
		b) Two standpipe pressure gauge, 0-5000 psi, Vernier type. The one installed on the outside of standpipe is China brand.	
		c) One choke manifold pressure gauge installed on chock manifold(not M/D), 0-15,000 psi, 0-10,000 psi Vernier type.	
		d) Rotary RPM sensor	
		e) Rotary torqueis display	
		f) Touch screen in driller's control cabin displays cumulative pump stroke	
		g) One pump has pump stroke sensor, each stroke will be shown on touch screen in driller's control cabin.	
		h) One tong torque indicators c/w pull line sensor	
		i) Each active tank and reserve tank, trip tank has one ultrasonic level gauge, whose dates are shown on touch screen in driller's control cabin and alarming function. Toally 8 sets	
		j) One ultrasonic level gauge for trip tank, shown in driller's control cabin, c/w alarm function.	
		k) One mud flow indicator, whose dates can be shown on touch screen in driller's control cabin and alarming function.	
		l) A general alarm system suitable for operation in desert conditions at up to 55 deg C.Capable of alarm sounds for H2S, combustible gas, and audible over the complete rig site(Same sound different colors) . Expatriation: The system including: Eight channel controller(in dog house) combustible gas detector Hydrogen sulfide detector Combustible gas calibration device H2s calibration device H2s calibration device	1 set
		The alarm shall consist of the following characteristics:	
		- Audible signal	
		- Visual signal	
Two alarming lights			
Capable of actuation by driller and rig site offices and capable of relaying mud logger alarms.			
m) Two emergency shutdown switches: generator and VFD			
n) Electric anti-collision instrument activates Electric anti-collision magnetic valve, and realizes draw works emergency stop.			





## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
		o) One choke control panel located outside of the Driller's position on the rig floor for remote operation of at least one of the adjustable chokes. The choke manifold pressure gauge, Item 5.1c, and one of the standpipe pressure gauges, Item 5.1b, to be mounted on the choke control panel.	
2	Driller's doghouse	a) Computerized monitoring for mud pressure, circulation rate (or pump strokes), weight on bit/string weight, rotary RPM, rotary torque and rate of penetration, and depth in meters, mud flow rate, mud tank liquid level. Put in captain office for recording and printing.	2 sets
		b) Mud volume totalize and flow rate can be shown on M/D instruments, no need of multi pen recorder	
		c) One ultrasonic level gauge for trip tank, shown in driller's control cabin, c/w alarm function.	
		d) Rig windows shatter proof.	
		Driller's dog house: 9800×2850×2900mm	1 set
3	Choke manifold	a) One instrument header c/w 0-500, 0-1000, 0-3000, 0-5000 0-7500 and 0-10000 psi gauges (to assist in dealing with low pressure kicks)	
		b) One choke manifold pressure gauge, 0-15000 psi Vernier type.	
		c) Connection specification for pressure gauges of various ranges in line with international standards.	
		5.3.a and 5.3.b combined on one panel mounted on the choke manifold. All connections must be welded.	
		Annulus pressure monitoring facility to minimize cellar entry during well control operations (remote gauge).	
		Annulus valve stem extensions for wellhead valves to minimize cellar entry during well control operations.	
4	Standpipe manifold	Each pump equipped with a pressure gauge before the isolation valve. Each pump equipped with a resettable relief valve( <b>3pcs</b> ). Discharge of relief valve to be routed to active mud system - self draining away from valve (2 deg slope). Relief valve discharge line	
5	Mud pumps	<b>Three</b> pressure gauge: model: M/D GMA6, no chart recorder.	
6	Deviation Equipment	DEVIATION SURVEY (0-16") Including 1pc BAFFLE PLATE,3-1/2 API,REG 1pc BAFFLE PLATE,4-1/2 API,REG 1pc BAFFLE PLATE,6-5/8 API,REG 1pc BAFFLE PLATE,7-5/8 API,REG 1pc BAFFLE PLATE,8-5/8 API,REG	1 set
		Crossover to allow combination Totco and magnetic single shot tool..	
		survey barrel.	



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
7	Wire line unit	One power driven measuring line assembly with 20,000 ft of 0.1" line complete with depth indicator, wire line pull indicator and spooling device. C/w certification incl. last stretch test report. Expatriation:CJ-6000 .Survey machine: 6000m Motor power (Kw) :7.5 Hydraulic system working pressure (Mpa) :≤15.7 Max.lifting force (N) :4077 Wire line diameter (mm) :2.5 Gear speed down and hydraulic stepless adjust speed Max. rotary speed of reel (r/min) : I =91, II=170	1 set
8	Calipers	Internal and external calipers in the range of 0-10" should be available. Ring gauges for 17 1/2", 12 1/4", 8 1/2" and 6" bits. Tri-point calipers for the range 2-17 1/2" (e.g.. Homco)	1 ea set
9	Derrick tapes	Two 100 ft long derrick tapes calibrated in decimal feet	
10	H2S and CH detection system	Complete detection system for H2S and hydrocarbon gas suitable for desert conditions in temperatures up to 50 de C. Comprising:	1 set
		- four measuring heads, explosion proof for installation at the bell nipple, shale shaker, wellhead cellar and rig floor.	
		central monitoring unit for 8 detection points.	
		- channel card for each measuring point for installation in the central unit.	
		- two alarm settings.	
		- 24 Volt DC back-up supply.	
		- alarm acknowledgement card.	
- explosion proof visible alarm (revolving alarm light) and audible alarm for installation at the rig floor and other stations as necessary to allow visible / audible warning over complete rig site.			
11	Gas Tester	a) Portable hand-held solid state electrical multi-meters for H2S, combustible gas, CO, and oxygen measurements.	1 set
		b) gas test set, suitable to establish concentrations of H2S, oxygen, and combustible gasses	
<b>F - DRILL STRING</b>			
1	Drill string	All NEW pipe and hoisting equipment to be in accordance with the relevant API specification limit	
		All tubular goods to meet the minimum dimensional and inspection standards API specification limit	
		All drill string components to be uniquely identifiable and traceable in certifying documents and history sheets.	
		All drilling string equipment to be provided with thread protectors for pin and box.	
		All bottom hole assembly parts or other down hole equipment such as drill collars, HWDP, substitutes, stabilizers, XO-subs, fishing tools etc. will be provided with:	
		stress relief groove on the pin connections according to API Spec.7, Section 6, paragraph 6.5.	
		- bore-back, preferably Drilco old style, on the box connections.	
		All threads to be cold rolled	



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
		Anti-galling (phosphating ) treatment on all connections	
		all down hole equipment will be provided with fishing necks as per API RP 7G	
		all down hole equipment used for long-term operation (drill pipe, drill collars etc.) is new.	
2	Drill pipe 5"	15,000 ft of 5" (19.5 lb/ft), grade G-105, range 2	15,000 ft
		a) Plastic lining, acceptable coatings: i) Vetco-Tuboscope TK 34 XT).	
		b) Friction welded tool joints with hard facing in accordance with Specifications ref.	
		c) NC 50 connections	
		a) Preferred hard banding Amco 100XT.	
3	Pup joints 5"	2 pup joints each of 1.1/2, 3 and 5m, G105, but no hard banding and plastic lining required	each 2
4	5" HWDP	5" OD 50 lb./ft range 2 with NC 50 connections,plastic lining:TC2000,hard banding: Amco100XT	50 joints
		All HWDP to be provided with centre upset pad to reduce buckling.	
5	Drill pipe 3 1/2"	15000 ft of 3.1/2" drillpipe.15.5 lb./ft grade G-105. Range 2 drill pipe complete with:	15,000 ft
		- plastic lining Vetco-Tuboscope TK 34 XT). Minimum thickness: 125 micron. Maximum thickness: 225micron.	
		- friction welded tool joints with hard banding Amco 100XT and 18 degree tapered shoulders.	
		- NC 38 connections	
6	Pup joints 3 1/2"	2 pup joints each of 1.1/2, 3 and 5m,but no hard banding and plastic lining required.	each 2
7	Heavy weight drill pipe 3 1/2"	3 1/2" OD, 26 lb./ft range 2 with NC 38 connections. plastic lining:TC2000,hard banding: Amco 100XT	50 jts
8	Drill collars	Sizes, dimensions and connections as stipulated in API spec 7,latest edition, section 6.	
		spiral drill collars 9 1/2" OD X 3" ID X 31 ft long with API 7 5/8 Reg. connections with tress relief groove	9 jts
		9 1/2" pony drill collars 10 ft long	2 pcs
		spiral drill collars 8" OD X 2 13/16" ID X 31 ft long with API 6 5/8 Reg. connections with tress relief groove	30 pcs
		8" pony drill collars 10 ft long	2 pcs
		spiral drill collars 6 1/2" OD X 2 13/16" ID X 31 ft long with NC 46 connections,with tress relief groove	30 pcs
		6 1/2" pony drill collars 10 ft long	2 pcs
		spiral drill collars 4 3/4" OD X 2 1/4" ID X 31ft long with NC 38 connections,with tress relief groove	30 jts
		2 pcs 4 3/4" pony drill collars, 10ft long	2 pcs



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items	Reformed Specification	Qty
9	270 degree open spiral integral blade type. Stabilizers with 7 5/8 Reg. connections have a 3" ID. Stabilizers with other connections have a 2 13/16" ID	
	All stabilizers which are used in the drilling string have connections to the same quality as drill collar connections. All stabilizer bodies is inspected for cracks	
	4 pcs 17 1/2" OD string full gauge stabilizers to suit 9 1/2" drill collars Model: WL444-241	4 pcs
	3 pcs 17 1/2" OD string full gauge stabilizers to suit 8" drill collars Model: WL444-203	3 pcs
	3 pcs 17 1/2" OD near bit full gauge stabilizers with float valve receptacle to suit the 9 1/2" drill collars, box x box, lower connection 7 5/8"REG. Model:WL444D-241	3 pcs
	4 pcs 12 1/4" OD string full gauge stabilizer to suit 8" drill collars Model: WL311-203	4 pcs
	3 pcs 12 1/4" OD near bit full gauge stabilizers with float valve receptacle to suit the 8" drill collars, box x box, lower connection 6 5/8"REG. Model: WL311D-203	3 pcs
	6 pcs 8 1/2" OD string stabilizers to suit the 6 1/2" drill collars Model: WL216-165	6 pcs
	3 pcs 8 1/2" OD near bit stabilizers with float valve receptacle to suit the 6 1/2" drill collars, box x box, lower connection 4 1/2" REG. Model: WL216D-165	3 pcs
	3 pcs 6" OD string stabilizers to suit the 4 3/4" drill collars Model: WL152-121	3 pcs
6" OD near bit stabilizers with float valve receptacle to suit the 4 3/4" drill collars, box x box, lower connection 3 1/2" REG. Model: WL152D-121	1 pc	
10	All drill stem subs to be in accordance with API spec. 7, 35th edition, section 5, type A, B and C. Outside diameters differences will be made in accordance with:	
	Cross- overs to include the following:	
	NC50 Bx7-5/8"REG P, NC50 Bx6-5/8"REG P NC50 BxNC46 P, NC50 BxNC38 P Model: JT/NC50B*7-5/8REG P; JT/NC50 Bx6-5/8REG P; JT/NC50 BxNC46 P; JT/NC50 BxNC38 P	each 1
	NC38 Bx7-5/8"REG P, NC50 BxNC46 P, NC50 Bx6 5/8 Reg P Model: JT/NC38 Bx7-5/8"REG P; JT/NC50 BxNC46 P; JT/NC50 Bx6 5/8 Reg P	each 1
	6-5/8"REGBx6 5/8 Reg P, 7-5/8"REGBx7-5/8"REG P Model: JT/6-5/8REGBx6 5/8 Reg P; JT/7-5/8REGBx7-5/8REG P	each 1
	X-Over for (3 1/2" DP - NC38(IF) & NC40(FH). X-Over for (2-7/8" DP - NC31(IF). X-Over for (2-3/8" DP - NC26(IF). Model: JT/NC40 BxNC40 P; JT/NC38 B*NC38 P; JT/NC31 B*NC31 P; JT/NC26 B*NC26 P	each 1
	X-over to run 9 5/8", 7" in tandem. Model: JT/B 6 5/8REG B-9 5/8BTC P; JT/B NC50 B-7BTC P	each 1



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
11	Inside BOP's	Drop-in Check Valve NC50 Pin and Box, 6 5/8" OD, including dart & fishing tool. Model: HY168*35MPa	2 pcs
		2 * Grey Valve NC50 pin x box 15K psi rating Model: NFQ165*105MPa	2 pcs
		2 * Grey Valve NC38 pin x box 15K psi rating Model: NFQ127*105MPa	2 pcs
		7 * Kelly Cock NC50 pin x box 15K psi rating Model: XXS168*105MPa	7 pcs
		3* Kelly Cock NC38 pin x box 15K psi rating Model: XXS127*105MPa	3 pcs
12	Circulating heads	No line pipe threaded connections permitted on circulating heads.	
		1 pce circulating head (inc. swivel) with valve 5000 psi WP with NC-50 pin down and a 2" hammer lugwing union female connection up (fig. 1502). Model: JTX165/35MPa	1 pc
		1 pce circulating head (inc. swivel) with valve 5000 psi WP with NC-38 pin down and 2" hammer lug wing union female connection up (fig. 1502). Model: JTX127/35MPa	1 pc
		1 pce circulating head (inc. swivel) with valve 5000 psi WP with NC-50 box x pin with 2" hammer union female integral side outlet. Model: JTPX165/35MPa	1 pc
		1 pce circulating head (inc. swivel) with valve 5000 psi WP with NC-38 box x pin with 2" hammer union female integral side outlet. Model: JTPX127/35MPa	1 pc
13	Float valves	2 pcs Float valves of each size to fit bit subs and near bit stabilizers: 5F-6R, 4R, 2F-3R Model: FZF241/70MPa; FZF203 /70MPa; FZF159/70MPa	each 2
14	Circulating subs	2 pcs 9 1/2" OD, 3" ID with 7 5/8 Reg connections, plus dressing kit. Model: PTF241	2 pcs
		2 pcs 8" OD, 2 13/16" ID with 6 5/8 Reg connections, plus dressing kit. Model: PTF203	2 pcs
		2 pcs 6 1/2" OD, 2 13/16" ID with NC-46 connections, plus dressing kit. Model: PTF165	2 pcs
		2 pcs 4 3/4" OD, 2 1/4" ID with NC-38 connections, plus dressing kit. Model: PTF121	2 pcs
15	Cup type testers	Cup type testers with cups for the following range of casing sizes and weights : 20", 133 lb/ft, 13 3/8", 68 - 72 lb./ft, 9 5/8", 40 - 53.5 lb./ft and 7", 29 - 32 lb./ft, 5", 15-21lb/ft; Model: ST20; ST13; ST9; ST7; ST5	each 1
16	Casing scrapers	1 pce Baker rotovert casing scraper for 9 5/8" casing, 40 - 53.5lbs/ft with 4 1/2" Reg. box down and 4 1/2 Reg. pin-up or NC 50 box up and NC 50 pin down. Model: GGQ245	1 pc
		1 pce Baker rotovert casing scraper for 7" casing, 29 - 32 lb./ft with 3 1/2" Reg. box down and 3 1/2" Reg. pin-up Model: GGQ178	1 pc
		1 pce Baker rotovert casing scraper for 5" casing, 15 - 21 lb./ft with NC26 box down and NC26 pin-up Model: GGQ127	1 pc

## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
17	Drifts	All drifts must be hollow and fitted with a standard wire line fishing neck on both ends for recovery down hole.	
		2 pcs API 5" drill pipe drifts Model: Z-TJG 5	2 pcs
		2 pcs API 3.1/2" drill pipe drifts Model:Z-TJG 3 1/2	2 pcs
		API drifts for CONTRACTOR supplied drill collars 9 1/2", 8", 6 1/2", 4 3/4"	2 ea pcs
18	Wipers	5" and 3.1/2" external drill pipe wipers	each 1
19	Testing subs	NC-50 box x pin, 0.5m long with 1/2" hole for running with plug type tester. Model: JT/NC50 BxNC50 P	1 pc
		NC-38 box x pin, 0.5m long with 1/2" hole for running with plug type tester. Model: JT/NC38 BxNC50 P	1 pc
20	Hang-off Subs	1 pce 5", NC 50 hang-off sub with square shoulder Model: TSDJZ-172-411	1 pc
		1 pce 3.1/2", NC 38 hang-off sub with square shoulder Model: TSDJZ-121-311	1 pc
<b>G - HANDLING TOOLS</b>			
1	Bit breakers.	26" bit breaker for tricone bits to fit rotary table	1 pc
		17.1/2" bit breaker for tricone bits to fit rotary table	1 pc
		12.1/4" bit breaker for tricone bits to fit rotary table.	1 pc
		8.1/2" bit breaker for tricone bits to fit rotary table.	1 pc
		bit breaker for 6" & 6 1/8" Tri-cone bits	1 each pc
		Bit breaker adapter plate	1 pair
2	Slips for drill string.	API extra long slips for 5" drill pipe.SDXL5 "	2 sets
		API extra long slips for 3 1/2" drill pipe.SDXL3 1/2"	2 sets
		Two sets 9 1/2" drill collar slips.DCS—L9.1/2"	2 sets
		Two sets 8" drill collar slips.DCS—L8.1/2"	2 sets
		Two sets 6 1/2" drill collar slips.DCS—R6.1/2"	2 sets
		Two sets 4 3/4" drill collar slips.DCS—S4.3/4"	2 sets
3	Drill collar safety clamp.	Drill collar clamps for the range 4 3/4" - 9 1/2" Pin latch type. (new dc's to be supplied without elevator recesses). WA-C3.1/2"-9.5/8"	2 pcs
4	Drill pipe elevators.	Centre latch elevators for 5" drill pipe, 18 degree tapered tool joints minimum 350 ton capacity. DDZ5"/350T	2 pcs
		Centre latch elevators for 3.1/2" drill pipe, 18 degree tapered tool joints, minimum 250 tons capacity. DDZ3.1/2"/250T	2 pcs
5	Links.	One set of elevator links 2.3/4" x 132", 350 short tons capacity.	1 set



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
6	Drill collar elevators	One set of elevator links 3 1/2" x 180", 500 short tons capacity.DH500	1 set
		One pair 9 1/2" drill collar elevator 150 ton capacity.DD9 1/2"/150T	1 pair
		One pair 8" drill collar elevator 150 toncapacity.DD8"/150T	1 pair
		One pair 6.1/2" drill collar elevator 150 tons capacity. <b>DD6.1/2" /150T</b>	1 pair
		One pair 4.3/4" drill collar elevator 100 tons capacity.CD4.3/4" /100T	1 pair
7	Drill pipe spinner.	ZQ203-100II.Applicable pipe diameter :3-1/2"coupling ~8"body; Rating working pressure of hydraulic system: 16.6MPa; Rated flow rate:114L/min; Max. torque: 100KN.m; With lifting hydraulic cylinder	1 pc
		Air cooling hydraulic power station : TDYZ120X2/16-8B. Rated working pressure:16Mpa; Rated flow rate:140L/min; Drive power: 30KW;	1 pc



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
8	Single joint elevators	Two pieces for 5" drill pipe, 18 deg tapered. SP5/18°. Two pieces for 3 1/2" drill pipe, 18 deg tapered. SP3 1/2"/18°.	each 2
9	Drill collar lifting subs	All DC lifting subs to have elevator recesses (18° deg shoulder), hollow and dressed with NC-50 box up (NC-38 for 4 3/4" dc's)	
		4" Drill collar lift sub 7 5/8" Reg Pin body, 9 1/2" OD x NC-50 box Box, 3" ID Model: TSDJ/241-731	4 pcs
		10" Drill collar lift sub 6 5/8" Reg Pin body, 8" OD x NC50 Box, 2 13/16" ID Model: TSDJ/203-631	10 pcs
		10" Drill collar lift sub NC 46 Pin body, 6 1/2" OD x NC50 Box, 2 13/16" ID Model: TSDJ/165-4A11	10 pcs
		12" Drill collar lift sub NC 38 Pin body, 4 3/4" OD x NC38 Box, 2 1/4" ID Model: TSDJ/121-311	12 pcs
		Lifting caps for 5" DP and 3 1/2" DP Model: ZTS-NC50P; ZTS-NC38P	each 2
<b>H - CASING EQUIPMENT</b>			
1	Drifts.	API light weight drift mandrels for 20" 133 lb/ft; 13 3/8", 88.2 lb/ft; 13 3/8", 68-72 lb./ft; 9 5/8", 53.5 lb./ft; 7" 38 lb./ft; 5" 21lb/ft; 4 1/2" 15.1 lb./ft in accordance with API spec 5CT section 7.9	each 1
2	Clamp-on type casing protectors.	for 20", BTC casing.	3 pcs
		for 13.3/8", casing.	3 pcs
		9.5/8" casing.	3 pcs
		7" casing.	3 pcs
		5" casing.	3 pcs





## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
3	Manual tongs.	B type manual tong for casing: Q13-3/8"-20"/35 Pipe diameter range:13-3/8"-20"; Max.torque: 35KN.m. B type manual tong: Q3-3/8"-12-3/4"/75; Pipe diameter range:13-3/8"-12-3/4"; Max.torque: 75KN.m.	each1
		Two sets of manual casing/tubing tongs to suit the range of 2 7/8" to 5" tubing, minimum torque rating 25,000 ft-lb (if suitable rotary tong, item 7.9c, may be used for this purpose). Model: Q2.3/8"-6.1/2"/35KN.M	2 sets
4	Casing elevators.	All casing elevators to be provided with safety device (pin / latch ), modified to latest manufacturers safety alerts.	
		1 pair 20" side door elevator, 200 ton. CD20"/200T	1 pair
		1 pair 13 3/8" side door casing elevator; 350 short ton.CD13 3/8/350T	1 pair
		1 pair 9 5/8" side door casing elevator; 350 short ton.CD9 5/8"/350T	1 pair
		1 pair 7" side door casing elevator; 250 short ton.CD7"/250T	1 pair
		1 pair 5" side door casing elevator; 200 short ton.CD5"/200T	1 pair
5	Single joint elevators.	1 pce 3 1/2" tubing elevator.SLX3 1/2/100T	1 pair
		Single joint elevators complete with safety latches and 3/4" wire rope sling with swivel.	
		SJ20"/5t	1 pair
		SJ13.3/8"/5t	1 pair
		SJ9 5/8"/5t	1 pair
		SJ7"/5t	1 pair
6	Casing elevator / spider.	SJ5"/5t	1pair
		Slip type air operated elevator-spider (one elevator, one spider) with all accessories for 20" casing. Capacity 500 Short tons, c/w long bails to suit elevator / spider combination. MODEL: SE500 Applicable diameter of tubulars: 16-24 1/2", Rated capacity: 500s short ton; Working pressure: 0.6-0.8MPa; Max. pressure: 1MPa	1 set
	Casing and tubing	Slip type air operated elevator-spider (one elevator, one spider) with all accessories for 13 3/8", 9 5/8", and 7", 5" casing. Capacity 500 Short tons, c/w long bails to suit elevator / spider combination. MODEL: SE500, Applicable diameter of tubulars: 4-14", Rated capacity: 500s short ton; Working pressure: 0.6-0.8MPa; Max. pressure: 1MPa	1 set
		Extra long casing slips complete with bowls to fit rotary .	
		CMS—XL20"	1 pair
		CMS—XL13.3/8"	1 pair



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
7	Casing and tubing slips.	CMS-XL 9 5/8	1 pair
		CMS--XL7"	1 pair
		CMS--XL5"	1 pair
		SDXL3.1/2"	1 pair
<b>I - FISHING EQUIPMENT</b>			
1	General	All fishing equipment will have stress relief features in accordance with API RP 7G i.e. bore back boxes and pin grooves.  The following is used as a guide to the minimum requirements:	
2	Fishing Jars	Fishing jars and intensifiers	
		Hydraulic fishing jar for CONTRACTORS 9 1/2" drill collars. Model:CSJ241II	1 pc
		Hydraulic fishing jar for CONTRACTORS 8" drill collars. Model:CSJ203II	1 pc
		Hydraulic fishing jar for CONTRACTORS 6 1/2" drill collars. Model: <b>CSJ165II</b>	1 pc
		Hydraulic fishing jar for CONTRACTORS 4 3/4" drill collars. Model:CSJ121II.	2 pcs
		Jar intensifier for CONTRACTORS 9 1/2" drill collars.Model: YJQ241	1 pc
		Jar intensifier for CONTRACTORS 8" drill collars.Model:YJQ203	1 pc
		Jar intensifier for CONTRACTORS 6 1/2" drill collars. Model: <b>YJQ165</b>	1 pc
		Jar intensifier for CONTRACTORS 4 3/4" drill collars.Model:YJQ121	2 pcs
Service kits for all of the above. Jars & intensifiers.			
3	Fishing Bumper subs	bumper sub for 9 1/2" drill collars .Model:KXJ241	1 pc
		bumper sub for 8" drill collars .Model:KXJ203	1 pc
		bumper sub for 6 1/2" drill collars.Model: KXJ165	1 pc
		bumper sub for 4 3/4" drill collars . Model: KXJ121	1 pc
4	Overshots.	Overshots to fish inside all hole / casing sizes. Model:LT-T245.	1 set
		a) Pack offs.	
		b) Extension subs (48" long).	
		1 pc. Overshot 9 5/8" OD, 6 5/8" Reg. Box connection c/w standard & oversize guides (9 5/8**12"), extension sub, wall hook(9 5/8**48") as required. 6 sets. Basket grapple inserts to catch 5", 4 1/2". c/w mill shoe, Yx seal ring, etc. 6 sets. Spiral grapple inserts to catch 8", 7 7/8", 6 1/2", 6 5/8", c/w A type packing, etc.	1set
LT-T206	1 set		



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
		a) Pack offs.	
		b) Extension subs (48" long).	
		1 pc. Overshot 8 1/8" OD, 4 1/2 IF Box connection c/w standard guide&oversize guides (8 1/8"*12"), extension sub, wall hook (8 1/8"*48") as required. 6 sets. Basket grapple inserts to catch 4 3/4", 4 1/2", c/w mill shoe, Yx seal ring, etc. 6 sets. Spiral grapple inserts to catch 6 3/4", 6 5/8", 6 1/2" , 6 3/8", c/w A type packing, etc.	1set
5	Junk baskets.	11 1/4 OD and 6 5/8 Reg. box-up.Model:LL112	2 pc
		7 7/8 OD and 4 1/2 Reg. box- up.Model:LL77	2 pc
		5.3/8" OD and 3.1/2" Reg. box- up.Model:LL46	2 pc
6	Reverse circulating junk baskets	11 1/4 OD and 6 5/8 Reg. box- up. Model:LL112	1 pc
		7 7/8 OD and 4 1/2 Reg. box- up. Model:LL77	1 pc
		5.3/8" OD and 3.1/2" Reg. box- up. Model:LL46	1 pc
7	Flat Bottom Junk mills	12.25" OD and 6.5/8 Reg pin-up. Model:PMX311	1 pc
		10.625" OD and 6.5/8 Reg pin-up. Model: PMX270	1 pc
		8.5" OD and 4.1/2 Reg pin-up. Model: PMX216	1 pc
		6" OD and NC38 pin-up. Model:PMX152	1 pc
8	Magnets	10.1/2" OD and 6.5/8 Reg pin-up. Model:CL265	1 pc
		7" OD and 4.1/2 Reg pin-up. Model:CL178	1 pc
		5.3/8" OD and 3.1/2" Reg pin-up Model:CL137	1 pc
9	Impression Blocks	11" OD and 6 5/8" Reg pin, Model: QM279	1 pc
		8" OD and 6 5/8" Reg pin, Model: QM203	1 pc
		5.3/8" OD and 3.1/2 Reg pin. Model: QM137	1 pc
10	String reamers	for 17 1/2", 12 1/4" , 8 1/2" & 6" hole sections Model: HYQ444II; HYQ311II; HYQ216II; HYQ152 II	1 each pc

**J - TRANSPORT AND LIFTING EQUIPMENT**



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
1	Wooden mats	Wooden mats. 1.Substructure Steel-wood foundation: With enough wooden mats and jack up unit bearing pads: 3900*1200*210mm . 4Pcs; 2.Solid control system Steel-wood foundation: 4000*3000*210mm , 21Pcs(Including 4pcs for spare use): Jack up unit bearing pad : 3900*1200*210mm , 8Pcs; 3.Mud pump Steel-wood foundation: 5000*3000*210mm . 8Pcs(Including 2pcs for spare use): Jack up unit bearing pad: 4800*1200*210mm . 4Pcs(Including 2pcs for spare use):	1 set
<b>K - ACCOMMODATION</b>			
1	General	Full camp to be highly mobile, trailer mounted to enable fast moves and meeting the specific requirements detailed elsewhere herein.  The camp will be designed for frequent moving and trailer-mounted . Camp will be designed to achieve a minimum number of loads.we think multiple caravans on one skid is insecurity.	
2	Rig site	All caravans is suitable for desert conditions (heating and AC), skid mounted and have been manufactured. All caravans to be designed for rapid moving between locations  All caravans will be sound proof and earthed. All double bunks will have ladders to the top bunk. All caravans fitted with smoke alarms and emergency lighting. All new accommodation to include en-suite bathroom / toilet facilities.  All rig site offices and other accommodation will have shatter resistant glass.	
3	Senior staff caravans	3 caravans, each with a separate office, bathroom and single bedroom for (company representatives, tool pusher and geologist).  Bedroom will be equipped with split air conditioner/heater, bed with bed light, side table, small table, easy chair, two door locker with shelves, curtains or equivalent.  Office will be equipped with desk with drawers, split air conditioner/heater, swivel chair, extra table, refrigerator, two extra chairs, two door locker with shelves, filing cabinet with drawers.	3 sets
4	Coffee shack	Coffee-shop c/w sanitary facility will be provided for crew members at the rig site. This have facilities for preparation of tea/coffee as well as a refrigerator for cooling drinking water.	1 set
5	Meeting Room	Suitable caravan (air conditioned/heated) with tables and chairs, equipped with TV, video, computer beamer or O/H projector to be used as meeting room for safety and DTL meetings. The room comfortably take at least 20 people	1 set
6	Rig Senior Staff	Two caravans each having single bed with table & chair for Rig senior staff (chief electrician & chief mechanic).	2 sets
7	Company Senior staff	Two caravans each having 2 bedrooms separated by a bathroom to accommodate company sponsored personnel. Each bedroom will be equipped with air conditioner/heater, 2 beds, bed lights and 2 lockers with shelves.	2 sets
8	Main Camp	21 caravans separated by a bathroom to accommodate up to 84 people. Each bedroom will be equipped with air conditioner/heater, beds, bed lights and lockers with shelves.	21set



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
9	On Site Clinic (OSC)	On site health center for the provision of medical attention, First Aid and Advanced Life support including Tier 2 Medical Emergency Response care. OSC will be equipped as per specification "MER (Medical Emergency Response) minimum requirements contained	1 set
		Clinic will be equipped with (as a minimum) air conditioner/ heater, one bed for examination, one stretcher, two first aid kits of which one is sealed, one medicine cabinet with shelves and lock, two chairs, basic medical instruments, medicines.etc	
10	Mess	Mess suitable to accommodate a minimum of 30 personnel together, air-conditioned/heated with tables, chairs, ice making machine and glass door refrigerator(s)	1 set
11	Kitchen	Kitchen meet to cook for up to 90persons equipped with all the necessary cooking utilities and dry store	1 set
		Food preparation surfaces is smooth and easily cleanable. Suitable air-conditioning / ventilation to cope with summer / winter conditions. Fly screens installed on all doors /windows.	
12	Laundry	Laundry suitable to launder for up to 90 people equipped with all the necessary washing and drying facilities for both working and personal clothing.	1 set
13	Recreation caravan	staff recreation caravan, air-conditioned/heated equipped with video recorder and DVD, satellite TV set, tables and chairs c/w overhead projector and screen	1 set
14	Toilets / washrooms / showers	All accommodation to include en-suite bathroom / toilet facilities.	
15	Food, water storage	Divided into two units one store room: Skid mounted freezer/cooler/dry store; another: water purification and storage system; Details see the drawing	1 set
16	Camp generators	Camp generators c/w fuel tank. Generators and fuel tank will be at least 50 meters away from the camp. Expatiation: VOLVO. FKS-V330, ,300kw(main power)/330kw(backup power)	2 set
		generator house	1 set
		fuel tank:20m3. with pipe pump.etc	1 set
17	Emergency power	Sufficient battery powered emergency lamps for strategic points at campsite (e.g. muster points) to allow escape in the event of a total black out .BFE8120,70watt.	10 set
18	Septic pits	Pipes carrying effluent to Septic pits (both rig and camp).	5 sets
19	Fitness room	air-conditioned fitness room inciuding : two rowing machines one jogging machine; two bicycles; range of free weights; weight bench; multi-gym machine; sound system.	1 set
20	Mosque	Suitable air-conditioned / heated caravan as a mosque	1 set
<b>L - FIRE FIGHTING EQUIPMENT</b>			
	General	Fire fighting equipment layout. All fire extinguishers to be of the non CFC (Halon) type.	



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
1	Portable extinguishers, Main Camp requirements	ABC type powder extinguisher, capacity 9 kg, cartridge type for: each port cabin (outside)(44pcs), fuel storage area (2 pcs), generator area (2 pcs) and water distribution pumps (1 pc).	49pcs
	Kitchen requirements	CO2 extinguisher, capacity 5 kg, for each kitchen (2 pcs) and switch gear room (2 pcs).	6 pcs
		Two fire blankets in each kitchen.	4 pcs
2	Rig site.		
	Alarm system	Provide details of fire alarm system and the equipment available for fire protection i.e. water sprinkler system etc.	1 set
	Portable extinguishers	ABC type powder extinguisher, capacity 9 kg, cartridge type for each port cabin, workshop area (4 pcs), fuel storage area (4 pcs) and driller's dog house (2 pcs).	10 pcs
		ABC type powder extinguisher on wheels, capacity 50 kg, cartridge type for:-	
		1) Generator area	2 pc
		2) Fuel/oil storage area.	1 pc
		CO2 extinguisher, capacity 5 kg, for switch gear room (2 pcs) and radio room (1 pc).	3 pc
		All portable extinguishers will be clearly visible and installed off the ground with brackets to walls or to free standing supports. Spare extinguishers, cartridges and powder will be available.	
	Fire pump	Independently (diesel) powered Fire pump c/w hoses to reach all parts of the location. Hose storage system to allow rapid deployment and protection from sunlight. Pump sized to drive a minimum of 2 hoses concurrently	1 set
Foam requirements	Entire foam fire extinguishing systems, including storage tank(5000gallon), foam tank(100gallon), foam generator, fire fighting pump 35KW/80psi, manifold and nozzle system, hoses and so on.	1 set	
	Sufficient foam for 2 hours fire fighting will be available when using oil base mud.		
<b>M - MISCELLANEOUS EQUIPMENT</b>			
1	Workshop Equipment.	a) Two electric welding sets 300 Amp. Capacity. Two oxygen and acetylene cutting torches. Purpose built rack for oxygen and acetylene bottles. Oxy-Acetylene sets complete with flash back arrestors at the regulators.	2 set
		b) Hand tools for workshop and drill floor including, metric and imperial full set, Allen keys, hammers, screwdrivers, pipe wrenches, chain wrenches, adjustable wrenches, chisels, nozzle pliers, pliers, ring spanners, files, wire brushes, paint brushes, dop. Expatiation:Toolkit House .The following items will be into the toolkit house: one steel tool box, one steel writing table, one box for keeping necessary books and documents, chairs and air cooler. 8500x2920x2800mm.	1 set
		a) One photocopy machine suitable for A-4 size paper.	1 set
		b) Two Desktop PCs and two laser printers	each 2 sets
		c) One A4 flat bed scanner.	1 set



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
2	Office Equipment	d) UPS systems for powering PCs and printers.	
		e) Maintenance, spare parts and consumables for the above PC and printer equipment.	
		f) One digital camera.	1 pc
		g) One speaker phone and one standard phone.	each 1
		h) One fax machine installed.	1 pc
		i) One overhead projector complete with screen.	1 set
3	Breathing Apparatus	a) Breathing apparatus, self contained, open circuit, positive pressure, minimum 30 minutes, cylinder pressure 200 bar, with case and valid inspection certificate.	6 sets
		Escape set breathing apparatus (10 min) with box steel .	6 sets
		c) One portable electric or diesel driven recharge compressor, complete and certified. Filter cartridges. Expiration: W-1.3/30 .15KW .	1 set
		d) One air purity testing kit	1 set
4	Fuel Tanks	- 2 each Cylindrical tanks mounted on 3 axels Trailer, total capacity 80 m3. Rig fuel tanks and camp fuel tank sized to allow a minimum of 7 days continuous operation at normal average drilling load without re-stocking. Expiration: 40m3,2sets	2 sets
		Both tanks complete with:	
		a) standard loading point connection and metering device	
		b) pipe work and explosion rated pumps to offload tankers at 60m3/hr minimum	
		c) earthing wires and clamps fitted will the loading point	
		Main diesel tank include a metering system complete with locking device to prevent unauthorized use.	
		Pump and fuel tank to include drip trays to prevent diesel spillage.	
		Day tank for both rig and camp sites c/w basket type fuel filter	
5	Potable water	Potable water tank(s) of 1000 bbls(1pc for 500bbls+1pc for 500bbls) capacity with electrically powered water transfer pump.	1 set
6	HP Cleaner	High pressure washer:M.PROFY 2960 T. WP:30-200 BAR Displacement:450-900 L/H Water tempreture:30-140 °C Voltage: 380V/50HZ Power:7200 W Diesel tank capacity:17 L Cleanser tank capacity :10 L	1 set



## IESCO-01 1500HP (ZJ50DB) Drilling Rig Technical Specification List- New One

Items		Reformed Specification	Qty
7	Floodlights	Three portable floodlights (500 watts), each on a stand with sufficient cable to be employed anywhere on the rig location suitable for Class I area.	3 pcs
8	Bug blowers	Two portable bug blowers 5 HP capacity for work around wellhead area and rig floor.	2 sets
9	Oil skimmer	air operated double diaphragm pumps of make Wilden, model PX15.with suction hose and skimming head.	1 pc
10	Mud return hoses	4" ID, from the side outlets of the wellhead to the flow line, in case casing slips are set prior to cementing c/w connections and X-over to 2" LP.	2 pc
		Two pieces solid steel blocks with 90 degrees outlets 4" ,7500 psi WP, studded and flanged with connection to mud return hoses	2 pc
11	Water bath	Temperature bath for cement samples.	1 pc
12	Burning baskets	Burning basket/ incinerator to dispose of rubbish. Garbage incinerator: HJFS-S300	2 pcs
13	Waste transport containers	Sufficient waste storage/transport containers to store on the well site.	2 pcs
14	Hand-held radio's; 6 pc minimal	Safe for use in zone-2 areas	6 pcs
		6 head sets for these radio's	
<b>N-TRAILER</b>			
1	Desert dolly	For mast and substructure moving about Integrated transportation style, separated transportation style (include mobile hydraulic power unit )	2 sets
2	trailer	For mud tanks(8pcs), generator houses(1pc), VFD system(1pc), mud pump unit(1 pc), fuel tank and water tank(4pcs), camp( only sledges, 14pcs)	1sets
<b>Installation&amp;commission and package</b>			
1	<b>Installation and commission in China</b>		
2	<b>Package</b>		
3	<b>Documents along with rig ,Chinese-English Delivery Attached Documentation.</b>		3sets



# **Appendix- B : IESCO-02**

## **XJ750 Workover**

### **Rig**



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
	<b>RIG TYPE</b>		<b>Truck-mounted Workover Rig</b> <b>Ambient temperature: -20~+55℃</b>		
	<b>Number of rigs</b>		<b>1 SET (750HP)</b>		
<b>1</b>	<b>MAIN EQUIPMENT</b>				
1)	Mast	JJ180/38	Type: two-section telescope, front tilted, front open, guy line, hydraulic raising and telescoping ; Max. hook load: 1800kN ; Effective height: 38.1m(125ft) ; Set back capacity on racking platform:3000m(914.4ft)(4-1/2" DP) ; Height of racking platform(from ground): 20.3m/22.24m /23.21m /24.21m(67ft/73ft/76ft/79.4ft) Wind capacity:110km/h(without hook and full stand) Including: two section mast, racking platform, hoisting system, telescope and hoist hydraulic cylinder,guy line, rail and safety device, etc.	1	set
2)	Drawworks	JC750S	Main drum: Fast line pulling force: 280kN ; Max. rotating speed: 450r/min; Groove length x diameter :1060 mm×Φ574 mm(3.48'×Φ1.88'); Brake type: band brake + auxiliary brake; Brake band wrap angle: 340°; Brake drum diameter x width: Φ1170mm×310mm(3.48'×1.88'); Clutch Model: ATD330H ; Shift: 5 forwards and 1 reverse ; Anti-collision system: toggle type; wireline diameter : Φ32mm(1 1/4"); Cooling type: forced water cooling system(water tank capacity :8m3/50bbls)	1	set



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
			Sand drum: Fast line pulling force: 110kN ; Brake drum diameter x length: Φ324mm×1060mm(Φ1.06'×3.48') Cooling type:natural cooling; Wireline diameter : Φ14.5mm(9/16"); Clutch Model: ATD124H ; Rope capacity : 3600m(11811ft); Including: main drum, sand drum, thrust disc clutch , chain,cover and brake system.	1	set
3)	Angle transmission box		Cast steel shell, forged steel spiral bevel gear, Input and output shafts are made by superior alloy steel; Lubrication type: oil bath splash type; Max. input rotate speed: 2100r/min; Max. input torque: 20000N·m Transmission ratio: 1.565:1	1	set
4)	Auxiliary brake	WCB324	Max. speed: 1200rpm; Rated thermal power: 604KW; Rated brake torque: 33870N·m /0.55MPa; Water cooling.	1	set
5)	Hydraulic cathead	Y15160 YGD- 125/2015	Rated working pressure:14Mpa(2000Psi); Rated working pulling force: (150kN) 137kN; Effective stroke: 1.62m; Cathead makeup pulling force: 100KN; Cathead breakout pulling force: 150KN.	2	pcs
6)	Travelling system		In accordance with API Spec 8C spec(5x6); Drilling wireline: Φ32mm ; Max. hook load: 1800kN .	1	set
6.1)	Crown block	TC180	Sheave No.: 6; Max. load capacity: 1800KN ; Raising line diameter: Φ32mm(1 1/4")	1	pc



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
6.2)	Travelling block hook	YG180	Max. load capacity: 1800KN; Sheave No.:5.	1	pc
6.3)	Wireline	Φ32mm/1 1/4"	Diameter:Φ32mm(1 1/4"),Length:1000m(3280ft).	1	roll
6.4)	Sandline	φ14.5/9/16"	Diameter:Φ14.5mm(9/16"),Length:3000m(9842ft).	1	roll
8)	Stand pipe	4"	ID:4" Working pressure: 35MPa(5000psi)	1	pc
9)	Rotary hose	4"	ID:4" Working pressure: 35MPa(5000psi) Length: 17.5m(57.4")	1	pc
10)	Compound box		Max. input rotating speed: 2100r/min; Max. output torque: 26000N.m.	1	set
13)	Workover floor		Adjustable height:10ft~15ft. 16 feet wide x 9 feet long; C/w independent setback of 2.5m(8.2") and 3m(9.8"). With handrail and ladders.	1	set
14)	Pneumatic system		Rated pressure: 0.85MPa(121.4psi) ; Displacement: 700L/min ; Including all kinds of valves and pipelines( import main components ) ;	1	set
15)	Hydraulic system		Oil pump displacement: 208L/1800r/min; Rated pressure: 14MPa(2000psi) ; Including all kinds of valves, pipelines and oil tank ( import main components ) ;	1	set
16)	Electric system		Power source loaded on the truck: 24V ; Power source loaded on the mast: 220V ; With sparking signal lamp on the top of crown block, mast anti-explosion lamp, drill floor anti-explosion lamp and carrier anti-explosion lamp.	1	set



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
17)	Hydraulic winch	YJ3B	Rated pressure: 14MPa(2000psi) ; Hoisting capacity: 30KN ; Wireline diameter / capacity:14mm(0.55")/100m(328ft)	1	pc
18)	Hydraulic winch	YJ5B	Rated pressure: 14MPa(2000psi) ; Hoisting capacity: 50KN ; Wireline diameter / capacity: 16mm(0.63")/120m(393.7ft)	1	pc
21)	DP ramp & catwalk		Catwalk 2 pcs (total length 13.5m/44.3ft, height 0.8m/2.6ft)	1	set
22)	Pipe rack		Height : 0.8m(2.6ft).	6	pcs
23)	<b>General description</b>		<b>Drive type of the chassis:10×10;</b>		
23.1)	Diesel engine	CAT C15	Power:540HP; Rotating speed:2100r/min ; Vertical arrangement, 6 cylinders, charging with inter-cooling, electric spraying; With low oil pressure, high water temperature, high rotating speed, high oil temperature, etc. alarm unit; with silencer, lubrication oil pressure sensor;	2	pcs
23.2)	Transmission box	M5620/Allison	5 forwards 1 reverse; Power: 550HP.	2	pcs
23.3)	Frame		Including girder assembly, front boarding, mud-guard, raising cylinder bracket and beam of hydraulic jack.	1	set
23.4)	Axle		Drive type of the chassis:10×10	1	sets
23.5)	Tire		Sand tyre :29.5R25(E7)	1	sets
23.6)	Cab		Single seat,single door ,single cab ;	1	pc
23.6)	Hydraulic jack			4	pcs



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
23.7)	Driller console		Stainless steel panel, c/w operation valve, instruments switch, pipelines, available for low and high position installation. Main valves are imported. Display oil temperature and oil pressure of power unit torque convertor, engine parameters, carrier's air pressure; clutch control for main drum, auxiliary brake, rotary table, mud pump; spinner, hydraulic pump, throttle of diesel engines.	1	set
24)	Self-contained tools and others		Tools along with rig	1	set
25)	Climb-assistant		Climb-assistant	1	set
26.1)	Weight indicator & deadline anchor	JZ250	Weight indicator & deadline anchor	1	set
26.2)	Escape unit on the racking board		Escape unit on the racking board	1	set
26.3)	Anti-drop unit		Anti-drop unit	1	set
26.4)	Elevator link	DH250	Elevator link Load capacity: 2250KN .	1	pair
<b>2</b>	<b>MUD PUMPS</b>				
1)	Mud Pumps	F-1000	Rated power rate: 1000HP; Rated stroke: 140Spm; Max. working pressure: 5000Psi ; Max. liner diameter: 6-3/4"; Suction inlet 12" flange, discharge outlet 5" flange ; c/w remote control system	2	Units
2)	Diesel Engine	CAT 3512	Model: CAT 3512; Rated power: 1025HP/50Hz Rated speed: 1200rpm	2	Units



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
3)	Transmission box	NT2040	Max.output torque:20000N.m; Max.input speed:2100rpm; Center distance:542mm; Clutch is controlled type: pneumatic; Ratio:4.855,3.651,2.613,2.010	2	Units
4)	Charging pump	HCP6×5	Displacement:190m3/h; RPM: 1450r/min; Power: 45KW; outlet dia.: 5"; inlet dia.: 6"; Impeller: 11".	2	Units
5)	Pump device		Mud base, cardan shaft(model: BJJ315F450) and protect cover.	2	Units
6)	High pressure manifold and hose		ID: 4"; Working pressure: 35MPa(5000psi)	1	Unit
7)	Remote control system		control pump from driller position and near location,including comprehensive monitoring and alarm function	1	set
<b>3</b>	<b>WELL CONTROL EQUIPMENT</b>				
1)	Remote control system	FKQ960-7	Total capacity of accumulator: 40×24; available fluid volume: 480L, 7 control points.	1	Set
2)	<del>Test plug and</del> Cup tester		sutable for all 7" (23,26,29 & 32#), 9 5/8" (43.5, 47, 53.5, 61#) 13 3/8" (54.5 & 61#)	2ea	pc
<b>4</b>	<b>CHIKSANS</b>				
1)			1-1/2" X 5000 psi X 8 feet	3	pcs



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
2)			1-1/2" X 5000 psi X10 feet	5	pcs
3)			2" X 5000 psi X 10 feet	6	pcs
4)			2" X 5000 psi X 8 feet	4	pcs
<b>5</b>	<b>DRILL PIPES</b>				
1)	Drill pipe	3 1/2"	3 1/2", 15.5 lb./ft, G105, EU, R2, NC38, inner coating TK34XT, hardfacing ARNCO 100XT	3000	m
2)	HEAVY WEIGHT DRILL PIPES	3 1/2"	3 1/2" HWDPP, 2610.7ft, welded type, 4145H+T340, NC38, R2, inner coating TC2000, hardfacing ARNCO 100XT	20	pc
3)	PUP JOINTS	3 1/2"	10 FT and 5 ft long, G105, No inner coating and hardfacing	3 ea	pc
4)	Drill pipe lifting cap		for 3 1/2" drill pipe	2	pc
<b>6</b>	<b>MUD CIRCULATING SYSTEM</b>				
1)	Mud tank		Effective volume: 1200bbl (190m <sup>3</sup> )	3	pcs
2)	Trip tank		Effective volume: 63bbl(10m <sup>3</sup> )	1	pc
3)	Pill tank		Effective volume: 50bbl(8m <sup>3</sup> )	1	pc
4)	Swab tank		Effective volume: 500 bbls(80m <sup>3</sup> )	1	pc
5)	Shale shaker	HyperPool 4-Panel	Derrick G force: 8G Inclination range: +2° to +8° Ambient temperature: 55°C; Motor temperature grade: T3	2	pcs





## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
			w/c screens (China brand) 8 each: 80meshes; 120meshes; 140meshes	1	set
6)	Liquid-gas seperator(poor boy)	HLGS1000- 1.0	Separate cartridge Dia.:1000mm(39.4"),pressure:1MPa, displacement:300m <sup>3</sup> /h, liquid inlet:5" , liquid discharge outlet 8", air discharge outlet:8" Add one ignition device Model: YPD20/3.5 Bore: DN200 Working pressure: 1.6MPa	1	pc
7)	Electric ignition device	YPD20/3.5	Model: YPD20/3.5 Torch nominal dia.: DN200; Working pressure: 1.6 Mpa; Power: AC220V/50HZ	1	pc
8)	Middle speed Centrifuge	LW600-945N	max. capacity: 60m <sup>3</sup> /h Min. sepearate point: 5-7um Main motor power: 37KW, 50HZ; Aux. motor power: 7.5KW, 50HZ. Feeding pump: DYWS60-12, power: 7.5KW Ambient temperature: 55°C; Motor temperature grade: T4	1	set
9)	Sand pump	HCP3×2×13	Motor power: 11KW displacement : 50m <sup>3</sup> /h ; Ambient temperature: 55°C; Motor temperature grade: T4	1	pc
10)	Agitator	HA-11	Motor power: 11KW, impeller diameter:1016mm(40"); Ambient temperature: 55°C; Motor temperature grade: T4	8	pc
11)	Agitator	HA-5.5	Motor power: 5.5KW, impeller diameter:660mm(26"); Ambient temperature: 55°C; Motor temperature grade: T4	3	pc



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
12)	Mixing pump	HCP8×6×14	Motor power: 55kW displacement: 250m <sup>3</sup> /h Ambient temperature: 55°C; Motor temperature grade: T4	2	pc
13)	Mixing pump	HCP8×6×14	displacement : 250m <sup>3</sup> /h;	2	pe
14)	Mixing hopper	HJM-200	200m <sup>3</sup> /h,bore of inlet,outlet 6" ;	2	pc
15)	Mud system accessories		Various connecting pipeline, valve, hammer union, mud gun, etc.	1	set
16)	Water tank	80m <sup>3</sup>	80m <sup>3</sup> (500bbls)) industrial tank, with pump room	1	set
17)	Boost pressure diesel tank		20+3m <sup>3</sup> (125.7bbls+18.9bbls)	1	pc
<b>7</b>	<b>RIG POWER SUPPLY</b>				
1)	Diesel generating set	C15	400KW, 50Hz, 1500RPM, 400V	<b>2</b>	<b>pc</b>
2)	Generator house			1	set
<b>8</b>	<b>AIR COMPRESSOR</b>				
1)	Srew air compressor	WS2210	Air discharging capacity:3.1m <sup>3</sup> (19.5bbls) working pressure:1Mpa.	2	pcs
2)	Air dryer	SRC-240	Processing capacity:6.6m <sup>3</sup> /min.	1	pcs
3)	Air tank	C-2/10	Volume:2m <sup>3</sup>	2	pcs
4)	Front&rear filter	MPF-250/MPH-250	Front filter:filter fineness:≤ 1μm; rear filter:filter fineness≤0.01μm.	1	sets
5)	Air house+MCC		12x3x2.965(m)	1	pcs



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
9	POWER TONG				
1)	Drill pipe POWER TONG	ZQ203-100	Pipe diameter range : 3-1/2"coupling--8"coupling; Max. torque: 100KN.m; Rated pressure of hydraulic system: 16.6MPa; Rated flow rate: 114L/min;Hydraulic stroke: 1500mm(59").	1	set
2)	POWER SWIVEL	Bowen S3.5	BOWEN model S-120 SWIVEL UNIT with a 3.5 S-120 swivel head powered by engine. Unit is mounted on new oil field skid;with a air control panel ; hydrolic reel and winch.BOWEN model S-120 power swivel with the following design features:Maximum torque: 8100 FT LBS; Maximum speed:150RPM; Maximum circulating pressure:5000PSI; Static load rating:120 ton; Engine: diesel engine,equipped with electric starter,alternator;12V battery and battery box and radiator; Remote air control panel has removal pedestal with air control valve for throttle and valve for forward and reverse with 100' hydraulic and air line	2	sets
3)	POWER SLIP	PS275	Applicable diameter of tubular: 2 3/8"-9 7/8" Rated capacity:350ton Work pressure:0.6-0.8Mpa Max.pressure:1Mpa Rotary table size: 27 1/2"	1	set
4)	POWER SPIDER	SE350	Applicable diameter of tubular: 5" Casing, 7" Casing, 9 5/8" casing, 13 3/8" casing Rated capacity:350ton Work pressure:0.6-0.8Mpa Max.pressure:1Mpa	1	set



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
10	<b>CABLE SPOOLER</b>	QDS-14/5-Y	Max.output torque:7500N.m; Max.load-bearing capacity:14T.	1	set
11	<b>PRODUCTION PIPE ELEVATORS</b>				
1)	Tubing elevator		SLX2-3/8/100T, SLX2-7/8/100T, SLX3-1/2/100T	each 1	pair
2)	Casing elevator		CD5"/150T, CD7"/150T, CD 9 5/8"/150T, CD 13 3/8"/150T	each1	pair
3)	DRILL PIPE ELEVATORS		DDZ3 1/2"/100T	1	pair
12	<b>HANDLING EQUIPMENT</b>				
1)	Tubing slip		SDS2 3/8, SDS2-7/8, SDS3-1/2	each1	pair
2)	Casing slip		CMS-XL 5,CMS-XL 7", CMS-XL 9 5/8", CMS-XL 13 3/8"	each1	pair
3)	Drill pipe slip		SDML3 1/2	2	pc
4)	Hydraulic Tubing tong	XQ89/3YI	For tubing size 2-3/8" , 2-7/8", 3-1/2"	1	set
5)	Manual Tong Type B		Q3 3/8-12 3/4-75, along with 2 pcs of snub lines	1	set
6)	Hydraulic Power Unit	YZBF-120LD	Rated flow: 120L/min; Max. working pressure: 2900Psi(20Mpa); Rated pressure: 2320Psi(16MPa); Drive power: 37KW; Explosion-proof motor	1	set



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
7)	All subs and cross-over subs		NC38 BOX*7 5/8"REG PIN; NC38 BOX*6 5/8" REG PIN NC38 BOX*NC46 PIN; NC46 BOX*7 5/8"REG PIN; NC46 BOX*6 5/8"REG PIN; NC46 BOX*NC38 PIN;	each2	pc
<b>13</b>	<b>HAND TOOLS</b>				
			Suitable hand tools for all mechanical work for work over operations:sledge hammer(18 pound/12 pound), crow bar(1m),pipe wrench(12"/8"),tape(20m),monkey wrench(12"),wire-cutter(8"),double open end wrech(5.5-32mm),"O "ring(1set).etc	1	set
<b>14</b>	<b>SUCKER ROD EQUIPMENTS</b>				
1)	Sucker rod elevator		SRE3/4" , 7/8" 1-1/8",/20T	each1	pc
2)	4"sucker rod ram BOP		4"sucker rod ram BOP,double EWP 3000psi,test pressure 5000 psi	1	set
<b>15</b>	<b>FISHING TOOLS</b>				
1)	Overshot,for 5" casing		LT-T127, OD: 5", NC38,with Grapple 2-3/4", 2-1/4"	1	pc
2)	Overshot,for 7" casing		LT178, OD:7", NC46, with Grapple 5", 4 3/4"	1	pc
3)	Overshot,for 9-5/8" casing		LT245, OD:9-5/8", 6 5/8REG, with Grapple 8",6-1/2"	1	pc
4)	Overshot,for 13-3/8" casing		LT-T340,OD:13-3/8", 7 5/8"REG, with Grapple 10-5/8", 9-3/4"	1	pc
<b>16</b>	<b>SWABBING EQUIPMENTS</b>		Details please see to swabbing equipment	1	set



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
<b>17</b>	<b>SAFTY VALVES</b>				
1)	size 2-3/8" EUE		for 2-3/8" oil tube	1	pc
2)	size 2-7/8" EUE		for 2-7/8" oil tube	1	pc
3)	size 3-1/2" EUE		for 3-1/2" oil tube	1	pc
<b>18</b>	<b>SAFTY EQUIPMENTS FOR RIG AND CAMP</b>				
1)	Scott air pack		Scott air pack	5	sets
2)	First aid kit		First aid kit	5	pcs
3)	150 lb. wheel mounted, dry chemical fire extinguisher.		150 lb. wheel mounted, dry chemical fire extinguisher.	2	pcs
4)	20 lb. CO2 fire extinguishers.		20 lb. CO2 fire extinguishers.	30	pcs
5)	H2S prtale detector with monitor		H2S prtale detector with monitor	5	pcs
<b>19</b>	<b>INSTRUMENTATION</b>				
1)	Drilling four parameters instrument (mechanical type)		Standpipe pressure, rotary table torque, tong torque, pump stroke	1	set
<b>20</b>	<b>WELDING EQUIPMENT</b>		Welding machine driven by diesel engine (zhongkai, ZKD180TW) with all required cables, holders, gloves etc	1	set



## IESCO-02 XJ750 Workover Rig Technical Specification and Quotation List

Items	Equipment Name	Model	Technical Description	Qty.	Unit
21	Well site Ex-proof circuit and lighting		Heavy Duty, explosion proof Fluorescent Lighting system(for project lamp) covering all working areas of the rig such as mast, sub-structure, rig floor, mud tanks, walkways, generator house, workshop and utility buildings including emergency lights at critical stations such as MCC room,drilling console certified for Class I, DIV 2, <b>along with a mobile lighting vehicle(RY-5GFT, four lights)</b>	1	set
22	Installation&commission and package				
1)	Package information				
2)	Domestic installation, commission				

**Appendix- C :**  
**introduction of kerui**  
**group products**





**IESCO**

Integrated Energy Services Company

الشركة المتكاملة لخدمات الطاقة المساهمة



**KERUI**

More Efficient in Oil & Gas Extraction

Professional Service  
Provider of Oilfield  
Systematical  
Solutions and  
Integrated Service

Advanced Petroleum  
Equipment  
Manufacturer

One of the Most  
Professional Oilfield  
EPC General  
Contractors and  
Comprehensive  
Solution Providers

# Unique Enterprise Core Values



**One Fundamental** : To build a platform for staff to display working talent and realize their life values.

**Two Cores** : Better Service Higher Quality; Technology Leading the Future.

**Three Goals** : To be the top-class high-end petroleum equipment research and development manufacture,  
To be top oilfield integrated technical service provider; To be top oilfield EPC general contractor.

**Four Orientations** : High-end Products, Globalized Market, Internationalized Talents, and Modernised Management.

# Global Technology Development System



- 18 R&D centers
- 6 research laboratories



- 1000 full-time R&D staff



- More than 300 various types of scientific research
- More than 200 leading technology



## Kerui Houston Petroleum Technology Research Center

- Research and development of high-end oil equipment Advanced layer fracturing tool
- Radial Drilling Tools, Coiled tubing tools
- R&D and design of Drilling Tools

## Calgary International Oil and Gas Technology Research Center

- R&D of Key technology and equipment for shale gas content and reservoir assessment
- Key technologies of reservoir engineering
- Shale reservoir fracturing optimization

## Shandong Kerui Institute of Petroleum Engineering Technology

- Reservoir evaluation, Exploration and development
- Heavy oil thermal recovery, Transformation of old oil fields, Sand control foam fluids

## Kerui Drilling Equipment Technology Development Center

- Land and offshore drilling and workover equipment, Ultra-deep drilling rig, Arctic drilling rig, Desert fast-moving rig

## Kerui Acid Fracturing Technology Development Center

- Acid fracturing Technology study and design
- Fracturing Tool Design
- Fracturing fluid study

## Kerui Cameron Unconventional Oil and Gas Technology Development Center

- Exploration and development of unconventional oil and gas resources
- Deepwater oil and gas processing

## Kerui Special Operations Equipment and Technology Development Center

- Coiled tubing equipment
- Fracturing equipment, cementing equipment R&D

## Kerui Technology Development Center in Singapore

- R&D and manufacturing of wellhead and subsea production systems

## Kerui Nitrogen and Nitrogen Foam Application Technology Development Center

- Nitrogen and foam drilling, workover, oil and gas fields to increase production, oil & gas storage and transportation, technology research in the field of heavy oil exploitation

## Kerui Nitrogen Generator Equipment Technology Development Center

- Skid-mounted membrane nitrogen generator
- Track-mounted membrane separation nitrogen plant
- R&D of nitrogen foam occurring system

# Maintaining & Building a Healthy Ecosystem Together with Our Partners

- Harmony between human and nature
- Health and safety protection of property owners, residents
- Zero occupational Injury
- Zero occupational diseases
- Engineering in compliance with local regulations

# Qualification Certificate



API, DNV, CE, ISO9001, ASME, GOST, IADC

# Professional Service Provider of Oilfield Systematical Solutions and Integrated Service



R&D centers



Specialists in various areas of oil industry



Professional engineering service teams



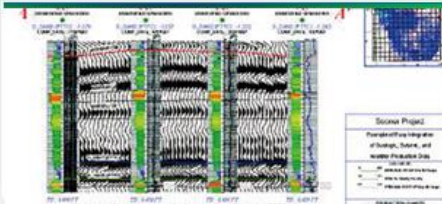
Leading technologies of oilfield service



# Service Range

## Oil & Gas Field Integrated Solution Provide

- Oil & Gas Field Block Evaluation
- Single Well Program Design
- Single Production Increasing Program Design
- Economic Evaluation



## Integrated Engineering Technology Service after Well Completion

- Drilling Engineering Service
- Drilling Fluid and Completion Fluid Technology Service
- Cementing Technology Service
- Directional Well Technology Service
- Mud Logging and Well Logging Technology Service
- Well Completion Engineering Technology Service



## Workover Operation Engineering Technology Service

- Conventional Workover Technology Services
- Complicated Oil & Gas Well Fishing Service
- Horizontal Well Sidetracking Technology Service



## Special Operation and Production Increasing Service

- Membrane Nitrogen Injection Engineering Technology Service
- Acidification and Fracturing Engineering Technology Service
- Coiled Tubing Engineering Technology Service
- Wet Steam Generator Technology Service



## Unconventional Oil and Gas Development Integrated Engineering Technology Service

- Individualized Geological Research and Evaluation
- Factory Mode Design and Construction
- Large-scale Project Implementation and Organizational Management
- Digitization Development Whole Process Management Platform







Advanced Petroleum Equipment Manufacturer

Advanced Petroleum Equipment Manufacturer

# Advanced Petroleum Equipment Manufacturer



Drilling Equipment Industrial Park



Oilfield Special Operations Equipment Industrial Park



Natural Gas Compressor Industrial Park



Wellhead Equipment Industrial Park

- High-end industrial park covers oil and gas exploration and development, oil and gas gathering processing, marine equipment, petroleum equipment full industry chain, in an area of **2.4 million** square meters
- Meeting customers demand for **one-stop sourcing**

# Product Range

## Drilling & Workover Equipment

- Conventional Land Skid-mounted Drilling Rig
- Truck-mounted Drilling & Workover Rig Series
- Arctic Drilling Rig
- Fast Moving Drilling Rig
- Cluster Well Drilling Rig
- Helicopter Lifting Drilling Rig
- Auxiliary Equipment Of Drilling Rig
- Offshore Drilling & Workover Module



## Oilfield Operation Equipment

- Fracturing Unit
- Coiled Tubing Unit
- Nitrogen Generation Equipment
- Liquid Nitrogen Equipment
- Cementing Unit
- Plunger Pump & Accessories



## Gas Compression Equipments

- Reciprocating Gas Compression System
- Centrifugal Gas Compression System
- Screw Gas Compression System



## Wellhead Equipment

- Wellhead Equipment and Christmas Tree
- Valve
- Bop
- Manifold
- Wellhead Control Panel
- Ground BOP Control Equipment



# Product Range

## Oil & Gas Processing Equipment

- Oil Gas Separation and Metering Equipment
- Crude Oil Stabilization and Treatment Equipment
- Natural Gas Sweetening Equipment
- Natural Gas Dehydration Equipment
- Light Hydrocarbon Recovery Equipment
- Sewage Purification Treatment Equipment



## LNG Equipment

- Natural Gas Purification Equipment
- Natural Gas cryogenic Liquefaction Equipment
- LNG Storage and Transportation Equipment



## Oil Production Machinery Equipment

- Pumping Unit
- Sucker Rod
- Sucker Pump
- Energy-saving Electrical Equipment
- Oil Field Injection Pump, Production Pump



## Oilfield Special Equipment

- Thermal Recovery Series
- Boiler & Pressure Vessel Series
- Other General Equipments



## Petroleum Pipe

- Tubing
- Casing
- Line Pipe Class
- Casing Accessories
- Drilling Tools



# Drilling and Workover Equipment Series



Arctic Rig



Fast Moving Rig



New Type 9000m of MEAT601



11 Sets of Truck-mounted Homemade Rigs

- Assemble yard can meet **15 rigs** assembly and commissioning at the same time
- Products are exported to Germany, Russia, Dubai, Italy, Colombia and other countries



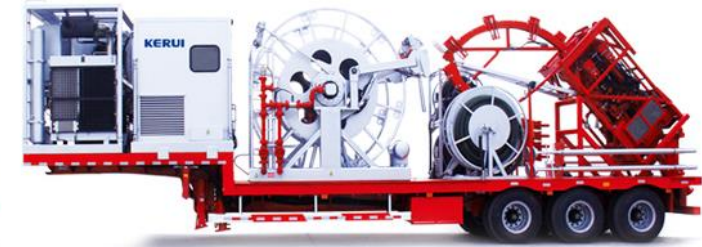
# Oilfield Operation Equipment Series



Cementing Unit



Fracturing Pumper



Coiled Tubing Unit



Data Van



Blender



Nitrogen Generation Equipment

- Area of oilfield special operation equipment manufacturing base: 2,500,000 ft<sup>2</sup>
- More than 300 design and technical employees, with over 50% professionals who have over five years working experience in the area of expertise



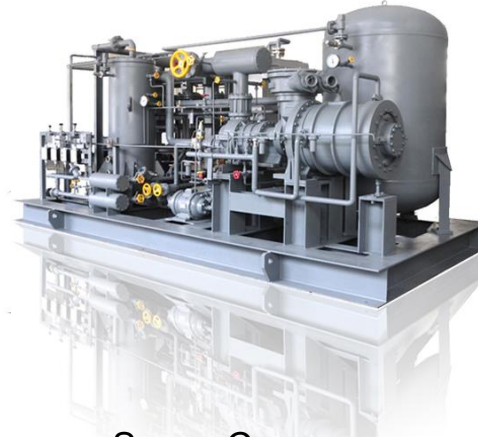
# Gas Compressor Equipment Series



Reciprocating Compressor



Centrifugal Compressor



Screw Compressor

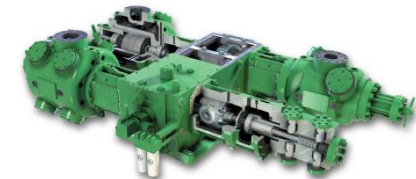


More than 300 professional designers with above five years experience



# KERUI

Establish Strategic Cooperation Relationship with Cameron, Ariel, GE and LMF



# Wellhead Equipment Series



- Production base covers an area of **30000 square meters**, the number of specializing in the production of manufacturing personnel is more than **800**
- We have more than **140** experienced staff on designing and developing



# Ensure Global Customers Achieve Higher Revenue



ALGERIA



RUSSIA



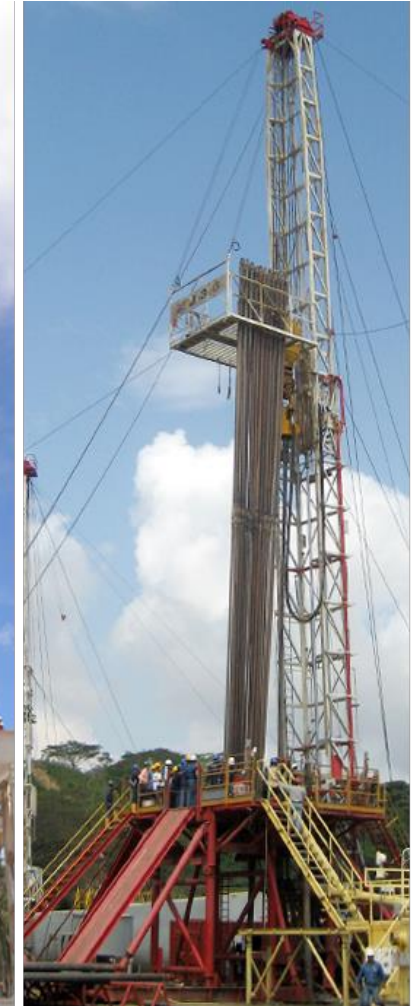
KAZAKHSTAN



VENEZUELA



INDONESIA



COLUMBIA

# Ensure Global Customers Achieve Higher Revenue



Fracturing Crew Working Site



Middle East Halfaya Project



Uzbekistan Project



900 Square Colombia Nitrogen  
Carnitrogen Injectionservice On-site



One of the Most Professional Oilfield EPC General Contractors and Comprehensive Solution Providers

and Comprehensive Solution Providers  
One of the Most Professional Oilfield EPC General Contractors

# An International Enterprise with Great Global Marketing and Service Network

- 33 local service centers worldwide
- 7 technical support centers
- 8-hour quick feedback mechanism
- 24-hour face-to-face interacting on site
- fast international logistics
- Kerui exclusive customs quick-clearance station
- 600 engineers with more than 10-year experience of oilfield after-sale service



# Global Service Centers and Spare Parts Warehouses



VENEZUELA



COLOMBIA



PERU



MIDDLE EAST



INDONESIA



ALGERIA



KAZAKHSTAN



TURKMENISTAN



DUBAI



INDIA

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# Global Cooperation Partners



Kerui has more than 1,400 cooperation suppliers and partners worldwide

# Global Customers



We provide oilfield equipment, technical solutions and services for over 200 oil companies and over 300 engineering and service companies worldwide.