Company Profile

ASIT Co., Ltd. (hereafter called ASIT) was founded in 2004 as a high-tech company affiliated with China Aerospace Science & Industry Corp. It has registered funds of RMB203 million. It has 600 staffs including 3 ministerial experts, one doctoral supervisor, more than 20 doctors, 20 researchers, more than 120 senior engineer and engineers, one super technician, 8 senior technicians, 42 technicians.

Depending on powerful research & development strength and advanced technical basis of CASIC, ASIT is mainly engaged in oil well logging instruments, oil drilling equipment, inertial sensor, special power supply circuit, positioning and direction system, navigation system, geological disasters and geotechnical engineering safety monitoring system. The products are widely used in aerospace, aviation, ships, weapons and other military areas, oil well logging, geotechnical engineering, geological disaster monitoring and early warning, machine tools and other industries.

ASIT has a ministerial R&D center, with postdoctoral workstation (youth talent experiment base), for many years won the title of "national quality and keeping promises", and a number of technology has been in domestic leading position. Participate in manned space flight, lunar exploration and other key projects; ASIT has won two national science and technology progress prizes and 19 provincial science and technology progress prizes, more than 60 national patent and the national defense patent.

ASIT pursues not only "Remarkable Technology, Scientific Management, Customer Satisfaction, Employee’s Pride" as its development goals, but also "Expanding the Market, Continuous Innovation, Continuous Improvement" as its quality policy. The company is establishing advanced high-tech century enterprise for maintaining domestic leading and advanced world levels.

Company Qualification

- GB/T19001-2000 QMSC
- API Specification Q1
- GJB9001A-2001 Military QMSC
- Computer Information System Integration Enterprise Certification
- GB/T28001-2001 Occupational Health and Safety Certification
- "Double Soft" Qualification Certification
- GB/T24001 Environment Management System Certification
- Qualified Supplier for A11 Demonstration System Engineering of CNPC
- National Weapons and Equipment Research and Production licenses
- Qualified Supplier for CNPC, Sinopec, CNOOC
- The Secondary security and Secrecy Certification
Wireless Measurement-While-Drilling (MWD) System- Power Generation Model (WMWD-01A)

**Introduction**

Wireless Measurement -While-Drilling (MWD-01A) System, developed by ASIT Co., Ltd., is a kind of drilling direction system with positive pulse and self-generated power. The system adopts the quartz flexible accelerometers and fluxgate sensor, which are developed for petroleum drilling by ASIT Co., Ltd., and realizes accurate measurement of trajectory parameters. The system may transmit real-time downhole parameters to the ground system by mud pulse transmission technology. Therefore the system can be used to provide real-time, accurate operation basis for directional well.

**System Components**

**Main Components of Ground Equipment:**
- Pressure Sensor
- Tool Face Indicator
- Host Computer
- Information Processing Computer

**Main Components of Downhole Tool**
- Directional Probe
- The integration mud pulse generator in power generation model
- Flow tube assembly
- Downhole peripheral parts

**System Features**

- High measuring accuracy, good long-term stability, calibration cycle of more than 1000h (downhole working time).
- Anti-interference and adaptable, uses the advanced soft/hardware fusion filtering technology, greatly improves instrument decoding ability.
- Based on aerospace technology, high reliability, and keep improving the idea of implementing product research &development and manufacturing.
- With short message function, realizes timely communication between the instrument room and drilling platform.
- Good scalability and can articulate well depth system and gamma sub, realizes natural gamma measurement of the geological parameters.
- Have the remote transmission function of measuring information.

**Technical Specifications (WMWD-01A)**

- **Inclination:** accuracy: ±0.1°
- **Azimuth:** accuracy: ±1°
- **Height/Magnetic Toolface (MTF/HTF):** accuracy: ±1°
- **The Outer Diameter:** Φ45mm
- **Drill Collar Size:** 115mm – 254mm
- **Pulser:** Positive pulse
- **Mud Flow Rate:** 10 L/s – 55 L/s
- **Mud Density:** 1.0 g/cm³ – 2.4 g/cm³
- **Shock:** 1000g, 0.5ms
- **Maximum Operating Temperature:** 125°C
- **Maximum Pressure:** 140 Mpa
- **Vibration:** 20g
- **Sand Content:** ≤1%
- **Gamma:** 0 – 380API, ±3API
Wireless Measurement-While-Drilling (MWD) System- Battery Model(WMWD-03C)

Introduction
Wireless Measurement-While-Drilling (MWD-03C) System, developed by ASIT Co., Ltd., is a kind of drilling direction system with positive pulse, down seat key, slim diameter, can be retrieved. The system adopts the quartz flexible accelerometers and fluxgate sensor, which are developed for petroleum drilling by ASIT Co., Ltd., and realizes accurate measurement of trajectory parameters. The system may transmit real-time downhole parameters to the ground system by mud pulse transmission technology. Therefore the system can be used to provide real-time, accurate operation basis for directional well.

System Components
Main Components of Ground Equipments:
- Pressure Sensor
- Driller Displayer
- Host Computer
- Information Processing Computer

Main Components of Downhole Tool:
- Directional Probe
- The Mud Pulse Generator
- Battery Nipple
- Salvage Head, Centralizer

System Features
- High measuring accuracy, good long-term stability, calibration cycle of more than 1000h (downhole working time).
- Anti-interference and adaptable, uses the advanced soft/hardware fusion filtering technology, greatly improves instrument decoding ability.
- Based on aerospace technology, high reliability, and keep improving the idea of implementing product research &development and manufacturing.
- With short message function, realizes timely communication between the instrument room and drilling platform.
- Good scalability and can articulate well depth system and gamma sub, realizes natural gamma measurement of the geological parameters.
- Have the remote transmission function of measuring information.

Technical Specifications(WMWD-03C)
- Inclination, accuracy: ±0.1°
- Azimuth, accuracy: ±1°
- Height/Magnetic Toolface (MTF), accuracy: ±1°
- Outer Diameter: 0.48mm
- Drill Collar Size: 115mm – 254mm
- Pulser: Positive pulse
- Mud Flow Rate: 10 L/s – 55 L/s
- Mud density: 1 g/cm³ – 1.7 g/cm³
- Shock: 1000g, 0.5ms
- Vibration: 20g
- Maximum Operating temperature: 125°C
- Maximum Pressure: 140Mpa
- Sand content: ≤1%
- Gamma: 0 – 380API, ±3API
**TLX-01A FOG Based Wellbore Continuous Surveying System**

**Introduction**

TLX-01A FOG (fiber-optic gyro) inclinometers, based wellbore continuous surveying system is a wellbore routing measurement system. It uses the minitype dual-axle FOG and quartz flexible accelerometers, which as its core sensors were developed independently by ASIT Co., Ltd. This system can accommodate itself to extreme working environments in oil-fields, such as repetition measurement of cased well and well-casing damage location, meanwhile the system maintain high precision and reliability. TLX-01A FOG System has been granted several patents by the Nation Intelligence Bureau. The system successfully introduced FOG into the petroleum industry and performed continuous measurement of wellbore routing with dual-axle FOG. Technical specifications of the system have reached to the international advanced level in similar products around the world. Up to now, this system has been applied successfully in many oil-fields.

**Components**

- Downhole equipment
- Host computer
- Data processing system

**Technical Specifications**

- Inclination: range: 0° ~ 90°, accuracy: ± 0.1°
- Azimuth: range: 0° ~ 360°, accuracy: ± 1.5°, 3° ≤ inclination ≤ 60° ±2.5°, 1° ≤ inclination <3°, 60° < inclination ≤90°
- Measuring parameters: inclination, azimuth, tool face, operating temperature, etc.
- Operating temperature: -20°C ~ +175°C (last four hours in the condition of 175°C)
- Maximum pressure: 120Mpa
- Vibration: 5g, 20Hz ~ 2000Hz
- Shock: 500g, 1ms
- The outer diameter: 89mm
- Operating Voltage: AC (220 ± 22)V

**Features**

- Adoption of full solid-state FOG with long operation life, strong anti-shock and strong anti-vibration.
- Automatic north-seeking, full attitude continuous measurement.
- High precision, high reliability, measuring results not affected by magnetic environment.

---

**TLX-02B FOG Based Wellbore Continuous Surveying System**

**Introduction**

TLX-02B FOG (fiber-optic gyro) inclinometers, based wellbore continuous surveying system is a wellbore routing measurement system in three-dimensional space. It realizes the continuous and precise measurement of wellbore routing by using the minitype dual-axle FOG and quartz flexible accelerometers. Articulated with SBT and multi-functional ultrasonic imaging instruments, it can measure cased well, describe wellbore routing curve and provide location information for other instruments. Meanwhile, the product has been applied in famous company called Schlumberger.

**Features**

- Adoption of full solid-state FOG with long operation life, strong anti-shock and strong anti-vibration.
- Automatic north-seeking, full attitude continuous measurement.
- Simultaneous measurement with SBT and multi-functional ultrasonic imaging instruments.
- Articulated with domestic and international mainstream logging system.
- High precision, high reliability, measuring results not affected by magnetic environment.

**Technical Specifications**

- Inclination: range: 0° ~ 90°, accuracy: ± 0.1°
- Azimuth: range: 0° ~ 360°, accuracy: ± 1.5°, 3° ≤ inclination ≤ 60° ±2.5°, 1° ≤ inclination <3°, 60° < inclination ≤90°
- Measure parameters: inclination, azimuth, tool face, relative rolling, No.1 plate azimuth, operating temperature, etc.
- Operating temperature: -20°C ~ +175°C (last four hours in the condition of 175°C)
- Maximum pressure: 140Mpa
- Vibration: 5g, 20Hz ~ 2000Hz
- Shock: 500g, 1ms
- The outer diameter: 92mm
- Operating voltage: AC(180 ± 18)V
**TLX Series Dynamic Tuned Gyro Inclinometer**

**Introduction**

TLX Series Dynamic Tuned Gyro Inclinometer, based on aerospace inertial technology, is a kind of small diameter measurement system. It uses the minitype dynamic tuned Gyro and quartz flexible accelerometers as its core sensors, which is typical application of inertial technology in oil field. The system is used for repetition measurement of cased well and well-casing damage location.

**Features**

- Automatic north-seeking.
- Without additional measures such as preheating.
- Provide the CCL and temperature curve at the same time, continuously operation. 
  easy construction of directional perforation, good scalability such as scalability of multi-armed caliper.
- Little gyro drift, small size.
- High precision, high reliability, measuring results not affected by magnetic environment.

**Product Types**

- TLX-38 Series dynamical tuned gyro inclinometers
- TLX-45 Series dynamical tuned gyro inclinometers

---

**Technical Specifications**

**TLX-38 Series Dynamical Tuned Gyro Inclinometers**

- Inclination: range: 0° – 70°
  accuracy: ±0.1°, 0° ≤ inclination ≤ 70°
- Azimuth: range: 0° – 360°
  accuracy: ±1.5° (3° ≤ inclination ≤ 70°)
  ±2.0° (1° ≤ inclination <3°)
- Toolface angle: Gravity high measurement precision: ±0.5°
- Gyro high measurement precision: ±2.0°
- Measure parameters: inclination, azimuth, tool face, operating temperature, and magnetic directional signal
- Operating temperature: -20°C – +125°C
- Maximum pressure: 110Mpa
- Shock: 350g, 0.5ms
- The outer diameter: 38mm
- Program environment: Windows XP/VISTA

**TLX-45 Series Dynamical Tuned Gyro Inclinometers**

- Inclination: range: 0° – 70°
  accuracy: ±0.1°,
- Azimuth: range: 0° – 360°
  accuracy: ±1.5° (3° ≤ inclination ≤ 70°)
  ±2.0° (1° ≤ inclination <3°)
- Toolface angle: Gravity high measurement precision: ±0.5°
- Gyro high measurement precision: ±2.0°
- Measure parameters: inclination, azimuth, tool face, operating temperature, and magnetic directional signal
- Operating temperature: -40°C – +175°C
- Maximum pressure: 110Mpa
- Shock: 350g, 0.5ms
- The outer diameter: 45mm
- Program environment: Windows XP/VISTA
**Natural Gamma Pup Joint (NGP-01)**

**Introduction**
NGP-01 Natural Gamma Pup Joint is used for testing strata gamma ray intensity in the process of wireless while drilling system measuring's drilling, as the basis of real-time formation evaluation and the component of comprehensive logging parameters.

**Product Features**
- Easy installation and use, stable performance.
- Use general bus structure, arbitrary combination with other MWD.
- High measure precision.
- Low power dissipation and high reliability.

**Technical Specifications**
- Measuring Range: (0 ~ 380) API
- Measuring Accuracy: ± 3 API (0 ~ 300API)
- Vertical Resolution: 130 mm
- Sensitivity: 2 counts per API
- Highest Operating Temperature: 125 ℃
- Resistance to Vibration Magnitude: 20g/(0 ~ 2000)Hz
- Shock: 1000g / 0.5 ms

---

**JXY Series Near-Bit Inclination Measurement Nipple**

**Introduction**
The product is applied into the inclination measurement unit of drilling instruments, and it provides users with real-time inclination and tool face for the convenience of various systems “matching”, it is particularly suitable for near-bit measurement.

**Features**
- Small volume, strong seismic capacity, good stable performance.
- Flexible and customizable interface with digital interface.
- Suitable for all kinds of directional drilling system and measurement requirements.

**Technical Specifications**
- Inclination: range: 0° ~ 180° accuracy: ± 0.2°
- Toolface angle: range: 0° ~ 360° accuracy: ± 1° (inclination>5°)
- Mechanical structure: Out diameter ≤ 25.5mm Length ≤ 140mm
- Operating temperature: 0 ℃ ~ 125 ℃
- Shock performance: 1000g / 0.5ms, half sine
- Vibration performance: 20g, 20HZ ~ 2000HZ
Electric Submersible Pump (ESP) Working Monitor System

Introduction
Electric Submersible Pump (ESP) Working Monitor System is composed of downhole instruments and Surface equipments (Surface host computer and choke), applied to monitor downhole parameters (pressure, temperature, vibration, and Current Leakage), at the same time it transfers the parameters to surface equipment. The processed data by surface equipment has special reference to the engineer and operator's adjustment of parameters, to management and decision-making of producing well, accordingly improving oilfield's production and management level.

Function
- Pressure measurement of intake and discharge.
- Temperature measurement of intake and motor.
- Motor vibration measurement (X-axis, Y-axis, Z-axis).
- Current Leakage measurement.
- All real-time data can be displayed and record by surface host computer.
- Ability of interface and communication with other surface equipments (such as frequency converters).
- Download storage data through USB.

Technical Specifications

System Technical Specifications
- Measurement Range
  - Pressure (intake and discharge): 0 ~ 40Mpa
  - Intake Temperature: 0 ~ 125 °C
  - Motor Temperature: 0 ~ 175 °C
  - Vibration: 0 ~ 10g
  - Current Leakage: 0 ~ 25mA
- Measurement Accuracy
  - Pressure: ±10 psi
  - Temperature: ±2 °C
  - Vibration: ±0.1g
  - Current Leakage: ±25 μA

Surface Computer Technical Specifications
- Supply power
  - Input: AC(100 ~ 264)V
  - Frequency: (45 ~ 65)Hz
  - Power Dissipation: 50W
- Display: 5.7 inch Crystal Display
- Keyboard: 14mm × 14mm digital keyboard
- Storage: 2GB
- Communication Interface: 1 RS485(separation)
- Operating Temperature: -20 °C ~ +55 °C
- Operating humidity: 50 °C (5 ~ 90) %RH

Choke Technical Specifications
- Inbreaking Protection: IP66
- Function: High voltage isolation, Over current protection, Inhibition of AC interference
- Operating Temperature: -20 °C ~ +55 °C
- Operating humidity: 50 °C (5 ~ 90) %RH