**Electro mechanical works for groundwater well in Jericho**

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| --- | --- | --- | --- | --- | --- | --- |
| **Item** | **Description** | | **Unit** | **Unit Price /$US** | **Qty.** | **Total**  **/$US** |
| **Electrical and Mechanical Works:**  The contractor shall submit in his offer and supply maintenance manuals, catalogs, characteristic curves, testing certificates, shipping, lading documents and specifications of pumps, motor, fittings, mechanical and electrical control devices, cables, wiring and all accessories and ancillaries to complete the work. All to be new and not renewed in accordance with the specified specifications. Therefore, the unit price in this tender must fit with the technical specifications; moreover, any material submittal should match with these specifications even if accepted by the open session committee. The contractor should verify these specifications and carry on the design based on such reference information including all equipments and materials in this tender. The contractor will conduct field visits to the well and must be before ordering any materials or equipment as follows: the contactor must check and verify and match between the reality and the design quantities (well dimensions, pumping pipes, electric and mechanical data) ,as mentioned in this tender. If he notices any difference or no matching, then he must inform the supervisor engineer and find together a suitable solution to such conditions. This include checking and fitting all dimensions mentioned in the tender as the well's hole diameter, well crookedness, pump diameter, electric connections, cables lengths, pipes diameter, discharge head inlet and outlet. The contractor must check in particular that the size of the hole of the well is enough to install the pumping pipes, and the water level pipes, cables together. The data and figures and sizes mentioned in this tender are the according to the information we got for this well from **the well owner**. The contractor should be responsible technically and financially to supply the suitable materials that fit with the reality. All connections including the electrical and mechanical fittings should be according to the instructions of the supervisor engineer. The price of items in this tender includes all works (labor and machine) that are required to supply and install all mechanical and electrical equipments. All equipments must be new as shown below; it includes all types of mechanical and electrical connections and all types of civil works that are necessary to safely test and operate the pumping equipments. | | | | | | |
| 1 | | **Supply and install a** multi stage submersible pumping Turbine complete (pump, screen, shaft bowels, stages, connection head to the **6”** pips and, all related accessories all as specified in the technical specifications attached with the tender. The price includes any other works to achieve the required head and quantity and efficiency all according to the Annex.  Current well net size diameter is **14**”, and total well depth is around **85** meters. The static water level is **around 65** meter and dynamic drawdown level is to be checked. The contractor offer for the submersible turbine properties has to fit as follows:   * Liquid water is suitable for agriculture uses; * Design capacity (m3/h): **70** * Design anticipated total head (TDH) (m): Anticipated turbine discharge at TDH at **110 m** * Maximum pump column and discharge head assembly head losses (m): 3 * Shut-off head limits (m): minimum **150 m** * Turbine overall efficiency at the intended point is not less than **75%** * **The** pump and motor permanent magnet type and must withstand static and dynamic inlet pressure minimum 10 **bars**. * Minimum bowl efficiency at run out capacity (80 %) * NPSHA at maximum run out capacity (m): 8 * NPSHA at maximum anticipated TDH (m): 5 * Motor and pump operating speed (rpm): 2,900 * Non-overloaded motor. * Max. Pump and motor diameter (inch): **10"** * Stainless steel column, stainless steel screen filter * Column pipe and discharge head diameter (in): **6”** * The contractor must check if necessary to install cooling using internal cooling cycle mechanism or by stainless steel shroud original (not local) encases the motor and to direct the water inlet to the pump as to pass from underneath and cool down the motor temperature according to the manufacturer recommendations and up-to pump inlet. * Closed impellers manufactured from bronze, zinc free and cast iron bowels, wearing rings of high quality and replaceable types. * The well pump shall be capable to run on/ off (restart) every few minutes with technical warnings and without mechanical faults. * The electrical motor must be supplied with RTD (**4-wire** **PT 100)** temperature protection sensor. The type of motor connection must be suitable to present the motor temperature digitally on control panel. The price include all wiring, PT cables from control panel to the submersible motor including connections and works required to connect the motor inside the well and the main control panel with the thermistor relay and off-alarm. * The motor must have two outlet cables as delta-delta connection or according to the manufactures recommendations. * Contractor has to connect the motor cable and control panel upon his responsibility. Using the flat cables **shielded with galvanized sheets** (see annex cable connection) overall the well depth to prevent cable scratches with well walls and to protect the cable. It includes to carry the insulation resistance with megger. If test fails, the contractor must left up the pump and checks the cable insulation. * The motor efficiency shall be not less that 85% at full load and designed and built for 24-hours **continuous service** at any and all points within the required range of operation without overheating, or cavitations or excessive vibration and strain. * Motor has to be new and furnished with a stainless **steel name plate** with data of the serial no., speed, Kw, input voltage, full load, Hz, power etc.) and motor must be 1.25 larger than Pump brake horse power or 1.15 larger than the total Input Horsepower to the Electrical Motor. * The motor shall be furnished with a removable water block lead assembly to prevent ingress of water and a sand slinger shall be installed where the shaft inters the stator. * The motor shall be filled at the factory with a treated glycol water internal lubricating solution for a maximum reliability and long life. * All works from supplying, installing connecting running and testing are under the contractor's expenses. * All works must be according to the Palestinian standards and engineer’s and manufacturer instructions and the specification and drawings. * The price also includes **any missing works not mentioned to execute this work.** * The contractor must submit the motor specifications, certificate of origin, catalogues and on site testing report which shows that the motor is matching with the manufacturer specifications. * The well pump shall be capable to run at shutoff head for a few minutes without mechanical problems as cavitation and overheating. * The **motor and turbine must fit** with each other according to manufacturers’ instructions for both together. * The turbine torque design and motor design should be **duty inverter** at speed range the design torque values between 1:10 * The price includes supplying and installing all required fittings as **non return valve** (built in) flanges, coupling, reducers, bolts, spacers, sleeves, nuts, etc. to connect between the turbine outlet, turbine column and the rising pipes. The price also includes casting concrete foundation and I steel sections to hold the turbine. The price includes all repair works as a result of old turbine disjoin or new turbine installation.   The contractor shall do in site testing the turbine in accordance with the performance curve and submitting the test report. Before installing any new materials, the contractor must check existing conditions of the well including: the well pumping capacity in m3/hr, water level inside the (dynamic and static). Therefore, the contractor must prepare suitable water meter and water level meter to carry on these measures. Therefore, the price of the turbine includes the costs of all these tests and submission of detail operation report including pumping quantities, drawdown, energy consumption, voltage, current, power factor, temperature…ect reading during start, peak power demand, and normal operation periods. | Lump Sum |  | 1 |  |
| 2 | | **Supply and install submersible electric** cable (two run) with the following specifications:  The cable is **flat with a light blue outer sheath**, drinkable conductors for permanent submersion in potable water, to respective depths and up –to 600 meters. It is water resistance tested according to the European standard EN 505825-2-21 (AD8 condition complete submersion in water) and meets the requirements of BS 6920, and IEC 60228 covering the suitability of non-metallic materials and products for use in contact with water. The **EPR (Ethylene Propylene Rubber)** insulation and Elastomeric Cross-linked outer sheath should provide a robust and **water-tight** barrier.  The voltage rating is **0.6/1kV** and a temperature rating of -25oC to +90oC. It is suitable for use in water of a maximum temperature of 80oC  the conductor main construction properties are as follows:   * **Class 5** (Flexible Conductor) fine stranded tinned pure Copper * Voltage rating: (0.6/1kv) 600 V between the conductor and earth, and 1000 V rms between adjacent conductors. * Inner Insulation: **EPR** (Ethylene Propylene Rubber) * **Outer sheath/ Jacket**: Elastomeric Cross-linked compound including filler materials   Conductors sizes for the two cable each one size **3x50** (1FL, 3GI3 quality insulation)+ **1x25 mm2** . The price for this item includes the supply and install of electric conductor (PT cables and connections) between the submersible motor and control panel on the surface to read the motor temperature. The junction box (**Water Proof**) and main connection as shown in the Annex. The cable is fixed to the pipes by stainless **steel clamps each 2 m** with soft rubber underneath **and pvc ties each meter**. The price includes the costs to install cable protection using **galvanized sheets** and encase the cable overall the well depth to prevent cable scratches with well walls and carry the protect the cable to carry the cable insulation resistance with megger and connect to control panel. | M.L |  | 100 |  |
| 3 | | **Main Electrical Control Panel Unit**: Price includes all works to carry on the electrical connections and cables to main grid and panels and supply and install suitable new control panel for pumping **70m3 @ 110** meter, and installing in the site for the mode of operation, a control board according to the following specifications and supervisor instructions: control panel box shall be made of **three major compartments** and the price for this item include all equipments and works mentioned below: The first compartment is for main hour meter and fusses- Main Company Breaker. The price include all cables and connection necessary to connect between the main 3-phase power source at the well site (transformer) and the Main Electric Control Board inside the pumping room. The cable size (XPLE high quality insulation 90 CO) **3x50** + **1x25 mm2.** The price includes all materials and works to install the above cables including whatever of electric, mechanical fittings and accessories as PVC and steel trenches, anchors with clamps, jumpers, stays including base, anchors steel wires, The cables must be lay inside 4"PVC/as rubber pipes of flexible spring type two layers. The price includes excavation inside all types of soil and rock trenches not less than 40\*30 cm and lay the cable inside these trenches and adding pure sand as backfilling to all size of the trenches and casting in the last 10 cm of the trenches with plain concrete over the pipes. The second compartment is for the **60 hp inverter** as ABB, or equivalent as shown specifications, main breaker as Siemens, contactors, capacitor(s) bank, main cables inlet/outlet.), It shall be IP56 protected, thermally painted paint as (RAL 7302). All main cables and wiring are inside ducts and must be closed with special plastic cover and protected against human electric shock. The third compartment includes all control circuits, and secondary contactor, breakers for the high voltage cabinet or the low voltage. The control panel must be fixed to the wall by six Jumbo screws and laid on a reinforced concrete foundation 40-50 cm above the ground. The contractor should submit as built drawing including soft and hard copy drawings. In case the contractor will use any digital control equipment including PLC, HMI screen; then he must submit the cable, the software, and new version of computer laptop as hp i7- double core and any other accessories that are necessary to operate and maintain these digital equipment; meanwhile the price for this item includes to train the well’s operator and technical staff on how to use and program the PLC and control panel and all installed equipment in this tender. The training period should not be less than 6-hours training hours over two separate days including safe operation, manual instructions, faults and calibration of equipments (inverter, breakers, timers, etc..).  The labeled nameplates should be mounted at the front of the main board behind the doors and above every switch and group of lamps. Control electric lamps 24v must be fixed to control all operation system, the starter shall be used to start, run, stop, protect and control manually and automatically by using the general required installation of the following equipments completely. The price for this item includes:   * The power circuit must consist of the following: **main circuit breaker** MCCB 3**\*100 A**, 25KA adjustable for the **company** and for **generator** (as MOLLER) **two pieces**. The price includes supplying and installing **manual change over with mechanical and electrical interlocks** switch 4\***100 A**, SOCOMEC type for manual operation. * Bus bar **150A/0.6KV** (3 phases and neutral and earth) * Complete unit 4p \* 20KA **surge arrestors** of replaceable type. With box fuse **3\*63A**. * Digital screen inverter **60 hp** see the annex. Solid state frequency converter as ABB type (with **bypass contactor 60 hp** as MOELLER type equipped with over /under load, over temperature and all control system needed with all protections rated at suitable power that matches the pump motor with (0.8-1.2) over load range). The inverter must be programmed to meet with manufacturers obligations for start-up and shut down of the submersible turbine   **Capacitor Banks**: Standby capacitor banks with discharge resistors compensating reactor dry type 400v 50 Hz to reach power factor not less than 0.97 Ducati. Three phase capacitor with resistors **15 KVAR** Ducati type.   * **Digital multi meter** which is able to read directly from a screen (V, Hz, KW, A, PF). * **Low and high voltage controllers, phase sequence and phase failure controllers (devices) and relay(s)** of best quality as MOELLER. * **On-off push** button set and emergency off button. * **Reset** push buttons red color 22 mm. * **Overload** relay unit rated at 1-1.5 of motor full load including digital motor screen protection control board. * **Temperature relay** unit and rated for the submersible motor. It includes thermal protection relay and thermistor sensor, including cable screened twisted pair (screen earthed at one end only) digital motor screen protection control board with all cables and connections. * HRC fuses **3\*63 A** complete Fernaz type. * WHM 50\*50mm. * **24 h clock** with 150 hr mechanical reserve. * Suitable **automatic breaker** **100 A** with adjustable thermal and magnetic protection (ISC>=25KA) NZM. * (0-500V) 96\*96mm **Voltmeter** with selector switch between phases and neutral. * (0-300 A) 96\*96mm ammeter for the three phases. * 3 phase fuse holders set , 10\*38mm , with suitable fuses , * **Suitable earth leakage relay** class **A (AC and Dc trip).** * Contactor with discharge 15 KVAR Moeller type. * **Running hour** timer * **Manual motor speed** controller and mouthed on outside board (range 0.8-1.2 normal speed) * **On-off** lamps for inside doors cabinets * **Breakers** for service as Siemens type. * **Relays** and timers 24 V for no flow switch and high-pressure, low-pressure sensors, temperature. * Three phase 50 Hz 390V (**KWh-meter**), /5A-200/5 CT’s. The KW-h meter as electromechanical meter or solid state and pre-paid card electric type. * 24V/ 50Hz **indication lam**ps installed in front of the control cabinet.. * 3 position selector switch **A-O-M**. * 220-2\* 12V (AC) **transformer 100VA.** * The price includes **all cables** to be used for control purposes shall have the following cross section: * **(3\*50 mm2 +25 mm2**) for the internal connections inside main board and the contractor has to check and order the exact required length (as item 2 properties). * 1.5 mm2 for the coil driving wheel circuits. * 2.5 mm2 for the circuits of tension measurements. * 1.5 mm2 for the sensors. * 4.0 mm2 for the circuits of intensity measurements. * All terminals shall be carefully protected to assure electrical insulation. * Switches, measuring instruments, and warning lights shall be installed in the front side of the panel. * The control panel shall be manufactured with enough space **(minimum 40% free space of the total size)** to insure easy maintenance and no interface between the wiring for all circuits. * **All wires must be coded clearly** and fixed with special wire heads to avoid loose connection. * All timers (PSK), relays and contactors shall be of best quality as Siemens * The contractor shall supply any other materials and devices that might be missed here and considered to be essential to complete the work without claiming any changes in unit prices. * The control panel must be equipped with an alarming bell (100 dB at 50 meters distance) and flashing red alarm (should be visible from 300 meter during day time). **Alarms for all cases of failure as: voltage drop, low or high voltage or phase failure, phase sequence, high or low pressure and no flow, high temperature etc…** * The control panel **must be equipped with** control circuit for both the probe water sensor and digital screen for hydrostatic water level sensor. * **Temperature control** as digital screen * The alarm must be muted with/without general reset and there should a special button in the front door to stop/reset it alone. * Circuits must consist of the all necessary materials to operate and protect the system automatically and manually, the wiring color system, numbering all the components. The price includes the design of the whole system of control the contractor is intending to carry. The contractor should also submit at the end of work as built drawing.   The control panel deign should include:   * Transformer 230/24V 150VA * Water level relay HK type. * 220V AC /120 Watt and **two fans** with filter in each compartment, one for taking in air and the other for taking out the air with grid ( for the panel) complete with thermostat protection. * SIREN (alarm system)   Alarm system 24V are equipped **ON-delay timers** for :   1. High pressure outlet 2. Low pressure outlet 3. No flow 4. Soft start faults 5. High temperature 6. Low, high voltage, phase sequence , failure   The motor must not restart more than the recommended number of starts per hour and day by the manufacturers.   * The price includes **all works, as excavation** works for installing pressure switches, flow switch and level sensor and all the electrical parts with suitable conduits and metal ducts to complete the works. * The price includes installing and testing for the mode of operation all mentioned devices and sensors. The control panel must be equipped with earthling unit so the price includes. * **Earthling**: The price of the control panel includes supplying and installing complete earth unit with earth equalizer compressing C40 box copper B.B. 25 mm2, with minimum two concrete manholes as foundation lines , two earth electrodes, D>19m, L=1.5m and any other missing materials to earth the pumping station . The price includes testing earth unit so as to fulfill the standard requirements (resistance less than 1.5-2 ohm). The across different fittings in the piping system. * The price also include supply all materials (as cables, in-out sockets and install, two outlets as 3-phase complete service unit for the pumping room including Main MCB 5\*20A -10 KA MOLLER type. MCB 2 \*10A – 10KA Moeller type the control * The price include all cable materials and works to conduct the electrical connections of the thermistor sensor inside the motor -(the cable 3x1.5 mm2 , the cable should be of suitable length. Use flexible thermal conduits, cable glands, wire terminals& labeling at both ends and all the accessories needed to complete the work as excavation & backfilling, the cable from the control panel to the head of pump motor. * **Wiring and Lighting the pumping room** Supplying and executing all materials needed for inside and outside lighting of the station (pump and station yard) including all works, trenches, cables, sockets etc. according to the following: * Supply and install 2x36 W flourcent surface mounted (water proof) IP56 for outside the room * Supply and install single split one air conditioner inside the pumping room, size 2-ton (24000 BTU/hr) inverter technology and EER > 13. * One phase sockets number four * Lighting the room from inside by four double-glass fluorescent lamps (36 w , water proof). * 3x30 w emergency 10 hours duration lighting fixture to be fixed in accordance with the supervisor engineer's instructions. * The lighting service should be controlled by a separate DGB. Its power source is directly controlled through a double pole MCB. * Lighting the outside of the rooms by External four projectors each of 150W HyLite LED Prism, as Philips water proof IP 56 with aluminum body (high quality) (the price includes all materials and works to carry the inside and outside wiring and lighting. The projectors, will be switched on from the service DGB. Distribution box for lighting suitable for 24 v circuit breaker (DBG). Also the price includes conduits, (3x2.5mm) and all size of cables& all accessories needed to complete the work. Supplying materials and executing 5 intake power sockets: one as three-phase and the other four as one-phase. The price includes supplying electric cables, leads, on-off keys, power sockets, trenches…etc. The price includes all any other missed works or materials to execute the lightening item. | L.S |  | 1 |  |
| 4 | | **Flow Control switch**: Supplying and installing an electrical flow switch **suitable for 6"** pipes, powered by a 24v-dc power source. Price includes all cables and protection conduits required to connect it with the control panel, according to the instructions of the supervisor engineer. | Num. |  | 1 |  |
| 5 | | **Pressure Control switch** Supply and install two pressure switches 1-16 bar **suitable for 6"** pipes and powered by a 24v-dc. Price includes all cables and protection conduits required to connect it with the control panel, according to the instructions of the supervisor engineer | Num. |  | 1 |  |
| 6 | | Supply and install pressure **2" Relief Valve**, 16 atm, complete, The price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve and according to specifications in the Annex. The Price also includes supplying and installing 2" coupling, 2” conical record, 2” nipple and " valve, according to the instructions of the supervisor engineer. | piece |  | 1 |  |
| 7 | | **Pump installation**: All works related to prepare the working site for the pumping installations: The work includes fixing the discharge head, pumping pipes turbine, cables, connections, etc and install the new pumping pipes, fittings, access pipes turbine, cables and all related accessories. The price involves checking and operating the pump after finishing all project works to insure no vibration or unusual sound, current, temperature according to the instructions of the supervisor engineer. The price includes all machines and labor works related to complete installation. | Lump sum |  | 1 |  |
| 8 | | **Pumping pipes**: Supply and install new **seamless iron pumping pipes** with the following specifications should be supplied: (SCH 40) **Diameter 6",** thickness not less than 7.81 mm; and teeth not less than 8 teeth in 1" factory made and painted with fusion –bond epoxy from outside and inside or galvanized and certificate of painting according to standards ISO 21809 Part 2. The number of teeth should be enough to cover the whole length of the intended coupling and not less than **13 cm** length to insure complete coupling to hold the turbine andpipes and accessories. The price includes threading cutting and adding reducers, or flanges, bolts to connect between the rising pipes and the pump. Taking in consideration that the quantity estimated in this tender may increase or decrease. | M.L |  | 80 |  |
| 9 | | **Pressure gauge**: Supply and assemble pressure gauge, 16 bar with oil liquid Rotal ASME, B40. Price includes excavation, cutting, welding, adding coupling, and accessories that are needed to assemble the gauge, according to the instructions of the supervisor engineer. | Num. |  | 2 |  |
| 10 | | **Discharge head:** Supply and assemble a new steel plate as discharge head complete: the intake and outlet dimensions are 6|" with a steel plate 80\*80 cm with a minimum **5 cm. thickness**. It includes 3 openings welded to steel pipe 15 cm height and 2 inches diameter and 4 mm thickness. The price include all works and materials necessary to fix the pumping pipes to the discharge head including excavations, casting reinforced concrete and in installing two I beams to support the discharge head and the pumping pipes. The price includes casting reinforced concrete B300 floor around the discharge head 20 cm thickness 2. \*2. m (using double mesh steel bars diameter 12 mm each 20 cm in both directions/top and down) The contractor should calculate the onsite dimensions to decide the exact elevation of the discharge to avoid in water leakage from the surrounding to inside the well hole. | Lump sum |  | 1 |  |
| 11 | | **Gate valve**: Supply and assemble gate valve, 6" complete, 16 bar. Price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve. The valves should be according to specifications mentioned in Annex. | Num. |  | 2 |  |
| 13 | | **Gate valve**: Supply and assemble gate valve, 3"complete, 16 bar. Price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve. The valves could be installed anywhere within the project area and according to specifications mentioned in Annex. | Num. |  | 1 |  |
| 14 | | **Non return valve**: Supply and assemble a non return valve, 6" complete, 16 bar of the swing type, and counter weight. Price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve. The valves should be according to specifications mentioned in Annex. | Num. |  | 1 |  |
| 15 | | **Compound air valve double orifice**: Supply and assemble 2" compound air valve complete, 16 bar. The price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve. The valves should be according to specifications mentioned in Annex. The Price also include supplying and installing 2" coupling, nipple and 2" gate valve. | Num. |  | 1 |  |
| 16 | | **Dresser:** Supply and assemble 6" dresser complete. Price includes ears 80 cm rods and screws, bolts, excavation, cutting, welding, and adding accessories that are needed to assemble the dresser with NP 16 bar. | Num. |  | 1 |  |
| 17 | | **Dresser:** Supply and assemble 3" dresser complete. Price includes ears 60 cm rods and screws, bolts, excavation, cutting, welding, and adding accessories that are needed to assemble the dresser with NP 16 bar. | Num. |  | 2 |  |
| 18 | | **Galvanized 3**" **pipes**  Supply and install 3” diameter galvanized steel pipes thickness 3.96 mm, and according to Annex specifications. | M.L |  | 6 |  |
| 19 | | **Elbows, T or Saddle:** Supply and install 6"/90 or 45 degree black steel elbows or T and Saddle for welding SCH 40. | Num. |  | 3 |  |
| 21 | | Supplying and installing of **6" Strainer** of cast iron body for 16 bar working pressure complete with companion flanges, gaskets, bolts and nuts. The general specifications are according to Annex S6. The installation works includes all costs of excavations, cutting, shaping, welding, paintings, either on new or old pipe lines. | Num. |  | 1 |  |
| 22 | | **Accesses Pipes**: **PVC, polyvinyl chloride sch. 80 pipes NP 25 bars of 1.25 Inches Diam.**  Supply, install and test in the well access PVC, pipes sch. 80/1.25 " size type threaded and suitable coupling at joints. These pipes should be fixed to the pumping pipes using stainless steel clamps and underneath with rubber jacket.  The price includes suitable pvc couplings sch. 80 and plastic ties to fix it to the pumping pipes. Meanwhile, making 1 cm holes every 20 cm in the last 10 meter pipes inside the well . | M.L |  | 90 |  |
| 23 | | Supply, install a screen digital **hydrostatic level meter** (submersible digital level sensor) with the following characteristics:   * Water Level Measurement: 300 m (max.) * Excitation: 9 to 30 Vdc, reverse polarity protected * Output: 4 to 20 mA DC, 2 wire, short circuit protected * Input Current: 20 mA max * Accuracy: 0.50% FS BFSL (includes linearity, hysteresis and repeatability) * Response Time: 2 ms * Operating Temperature: -10 to 60°C * Proof Pressure: 150% * Burst Pressure: 200% * Wetted Parts: 316 stainless steel * Electrical Connections: Submersible cable terminating in digital leads   The price includes all works and materials, as cables, connections, sensor, digital screen that shows the remaining water depth above the sensor. The price includes all wiring necessary to connect the sensor inside the well’s hole to the MCB. In addition to that a process meter/controller, should be digital and programmable one, with flush mounted to be installed in the MCB 's door, step response 2sec,6A dual relay. | L.S |  | 1 |  |
| 24 | | Supply and install a complete 6" cast iron **water meter** according to ISO 4064 (class B) or equivalent. Capacity 150 m³/hr, 16 bar painted with epoxy coated from both inside and outside, the measuring unit should be removable type without removing the body Price includes excavation, cutting, welding, adding dresser, flanges, screws, bolts, gaskets and adding accessories that are needed to assemble the valve with the dresser. | Num. |  | 1 |  |
| **Total costs of all materials and works** | | |  | | |  |

**Costs Summary**

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| --- | --- |
| **Description** | **Total amount /$US** |
| **All Mechanical and Electrical works for the groundwater well in Jericho.** |  |
| **Total in words (includes) –$US** | |

**Company / Contractor Name: --------------------------------------------**

**Address: -----------------------------------------------------------------**

**Telephone: -------------------------------------- Fax: ---------------------**

**Signature and Stamp: --------------------------------**

**Date: -----------------------------**