



**THRUST BORING & PIPELINE SERVICES
COMPANY PROFILE**



شركة أعمال الحفر
Drilling Works Contracting Co

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Drilling Works Contracting Co

1. INTRODUCTION

Drilling Works Contracting Co, is developed in order to meet the growing need for trenchless technology works in the kingdom of Saudi Arabia. Drilling Works Contracting Co, believes in producing the very best of modern technology by adopting and utilizing latest construction technologies, techniques and decided to invest in the most up to date trenchless technique.

The main principles and strategy of Drilling Works Contracting Co is to offer a full range Thrust Boring and Pipeline services (Directional Drilling, Micro Tunneling, Direct Pipe, Pipe Jacking, Auger Boring, Vacuum Excavation, Piling, Vertical Drilling and Water Well Drilling). Our project teams maintain a strong foundation.

2. OUR SERVICES

- A. HORIZONTAL DIRECTIONAL DRILLING
- B. MICRO TUNNELING
- C. DIRECT PIPE
- D. AUGER BORING
- E. VACUUM EXCAVATOR
- F. PILING & CONCRETE & STEEL
- G. DEWATERING
- H. VERTICAL DRILLING (WATER AND CP FOR OIL WELL)
- I. ROBOTIC COATING SERVICES
- J. DWCC JV PARTNERSHIP / ROBOU TRENCHLESS

We pioneer the development of the technology in our chosen fields. We have succeeded to introduce these technologies to our region working closely with expatriate's engineers and specialized operators. We are at the forefront of our expanding business. Our unique success in this field is achieved by employing the most highly skilled expatriates in the **Pipeline, Tunneling, Drilling and Piling Industry**.

Our aim is to make Drilling Works Contracting Co one of the Middle East's most respected specialized drilling & pipeline services companies providing the Clients with a reliable and professional services.

Provide the following:

1. Quality product, on time and within budget.
2. Competitive price.
3. Improved performance.
4. Excellent working relationships for smooth running projects.

A. HORIZONTAL DIRECTIONAL DRILLING (20 Ton to 50 Ton Rig)





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S.No	Ton Pull Force	Nos	Pipe Size	Boring Length	Ground condition	Year
1	American Auger : DD- 9014 (50 Ton)	1	4"-30"	20m-500m	Rock & Soft Ground Conditions	2009
2	American Auger : DD110 (50 ton)	1	4"-30"	20m-500m	Rock & Soft Ground Conditions	2017
3	Ditch Witch :JT4020 (20 Ton) (All Terrain Rock Rigs)	2	4"-20"	20m-300m	Rock & Soft Ground Conditions	2012-2014
4	Herrenknecht 250 Ton Rig	1	10"-48"	200m-3000m	Rock & Soft Ground Conditions	2020

DWCC has invested in state of the art Horizontal Directional Drilling (HDD) Maxi rigs Herrenknecht 250-ton Rig and small rigs American Augers (USA) & Ditch witch. 20 ton HDD RIG to 50 ton to offer its customers the most up to date method of installing underground pipes and conduits along a prescribed bore path from the surface, giving minimal impact to the surrounding environment,

This process is used for installing water lines, telecommunication and power cable conduits. Gas and oil pipelines allowing for installations under waterways, roadways, shore approaches and environmentally sensitive and highly congested areas. Also drilling under sand dunes for Aramco in Saudi Arabia

B. TUNNELLING & MICRO TUNNELLING

We offer Micro-tunneling Services our micro tunneling equipment is remote controlled operated tunneling machines, which is driven from a drive shaft to a receiving shaft by means of a hydraulic jacking station. The TBM equipment is electric hydraulic powered.

The micro tunneling machine is launched from the pit through an entrance which isolates the ground from the pit.

In Micro tunneling the excavated soil is carried as a slurry mixture to the surface. Ground pressures are equalized with slurry and jacking pressure. As the tunneling machine is driven forward, jacking pipe is added on to the back of the machine, Steering and guidance is Accomplished by means of a laser and hydraulic steering jacks inside the tunneling machine. Micro tunneling can be used to achieve the required gradient in different ground formations and within the water table with up to 3.0Bar of face pressure this allows for deep pipeline installation.

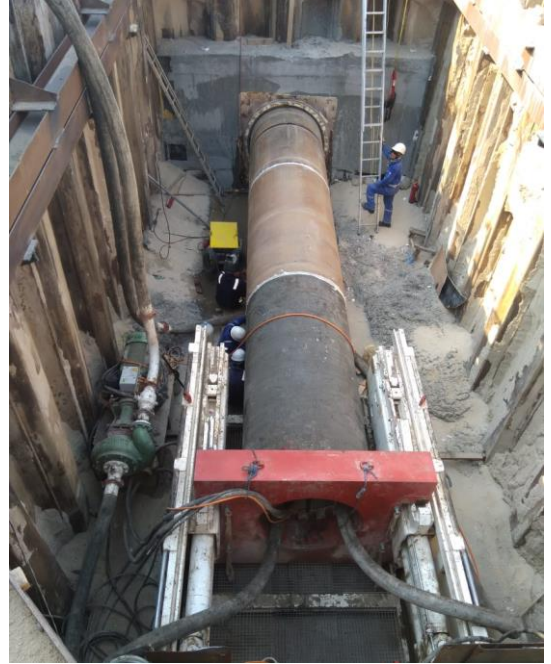
Equipment Available:

Micro tunneling – 3 No.

Pipe Sizes: from 1000 ID to 2800 mm ID

Boring Length: 20 meter up to 700+ meter.

Ground Conditions: Soft, Medium & Rock Ground Conditions.



C.DIRECT PIPE

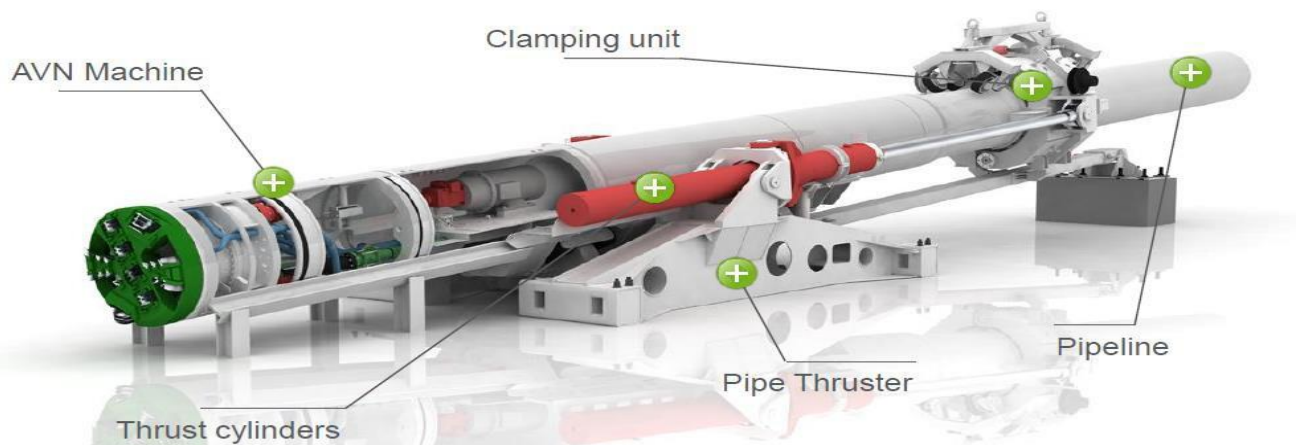
Direct Pipe® technology.

One-step installation for pipeline crossings.

- ▶ Fast and safe installation of product pipes and pipelines



Direct Pipe®. Main system components.



The Direct Pipe method opens up new application options by combining the benefits of accepted technologies to create a new method. For example, it uses micro tunneling machines, which have proven their value in Pipe Jacking for decades, for excavation work. Pushing the pipeline is handled by the Pipe Thruster, which grips the pipeline circumferentially and pushes it into the ground. This means that the pre-fabricated pipeline can be laid in the ground simultaneously with the excavation process, thus permanently supporting the borehole.

The now established process is characterized by the fact that it is suitable for direct laying of larger diameter steel product pipes size 48" to 56". In specific project framework conditions, Direct Pipe offers benefits compared with older established laying methods, and is thus a useful alternative in many cases.

The following Method Statement provides an introduction to the machine technology and design parameters. Based on reference projects, a differentiation between Direct Pipe and the alternative methods, Horizontal Directional Drilling (HDD) and Pipe Jacking / Micro tunneling follows

1. Control Container
2. Generator
3. Separation & Bentonite Mixing Plant
4. Pipe section
5. Data & electric cable (connected with control container)
6. Slurry & Bentonite lubricant lines (connected with separation tank)
7. Feed and Discharge Pumps



D.AUGER BORING MACHINE

2 Units - Auger Boring (Pipe size from 20 inch to 56 inch)



This Auger Boring machine is from the world renowned American Augers Company USA. Auger boring consists of the use of a dry rotating auger, driven normally through a jacked steel casing pipe on mostly soft and medium type ground conditions. The casing is jacked in as the auger advances. Boring machinery is typically placed in a pit on grade with the bore profile and exits into an exit pit. Using a two casing system, some steerage is possible.

This method is widely used under railways, roads and structures. With pipe from 12" up to 48" in diameter, this remains one of the most cost effective crossing methods in many areas.

Equipment Available:

AMERICAN AUGER MACHINE (48/54-900 NG) - QUIK/SPLIT TM– 2 Nos.

Pipe Sizes	:	20 inch to 56 inch.
Boring Lengths	:	20 m up to 150 m.
Ground Conditions	:	Soft, Medium Ground Condition.

E. VACUUM EXCAVATOR



2 Units - Vacuum Excavators (Year 2013)

Vacuum excavator allow for the excavation of buried services to be made using the latest machine technology. By using vacuum technology to remove ground material, it is fast and effective method of exposing underground services without making contact with ground. By using vacuum excavation damage to underground services is eliminated completely avoiding costly repairs and additional works.

DWCC investment in the most advanced vehicles from Germany allow for ground materials (upto 250mm in diameters) to be excavated at a rate of 10 cubic meters per hour into its own on-board stage container. Excavation is carried out using a remote controlled arm fitted to the rear of the vehicle. Material can be excavated up to a depth 45m vertically or 125m horizontally.

F. PILING CONCRETE & STEEL PILING

CONCRETE PILING

A concrete pile is a component in a pile foundation which is driven into the ground to ensure that the foundation is deep, Pile foundation can use large numbers of concrete piles during their construction, with the piles connecting to the footers of the foundation. The piles distribute the weight of the finished structure, reducing the risk of structural failure or collapse, People can often see examples of the concrete piles at urban constructions tend to build tall in urban areas to maximize the potential uses for a building.

Once the concrete was cured correctly, the timber frame may be removed, leaving a slab of reinforced concrete joining the pilings. Now the rest of the building's structural works may begin, using these slabs as foundation points.

Deep foundations such as pile foundation can be chosen for a number of different reasons. In some cases, the sheer size of a building may dictate the use of a deep foundation because a shallow foundation could not support the building. The underlying ground can also be a factor, as some types of ground cannot support a building safely, and a deep foundation may be used to anchor a building to bedrock. Seismic activity is another thing which can influence decisions, as earthquakes can be a safety concern.

Concrete piles are typically made with steel reinforcing and pre-stressing tendons to obtain the tensile strength required, to survive handling and driving, and to provide sufficient bending resistance.

Long piles can be difficult to handle and transport. Pile joint can be used to join two or more short piles to form one long pile. Pile joints can be used both precast and pre-stressed concrete piles.

Pre-cast or pre-stressed concrete piles are one of the most commonly used concrete piles. More than 40% of our jobs involve concrete pipes due to their relative low material cost, custom lengths and ready availability.

The cost of concrete pile can be varied based on design loads, dimensions and length required, getting the load bearing capacity needed without costly material waste, additionally concrete pile can be ready to drive in 14 days, as opposed to steel piles, which can take from 6-8 week to receive from a mill.





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Our experience and knowledge of soil mechanics and job requirements help our clients save time and money and can help avoid costly delays.

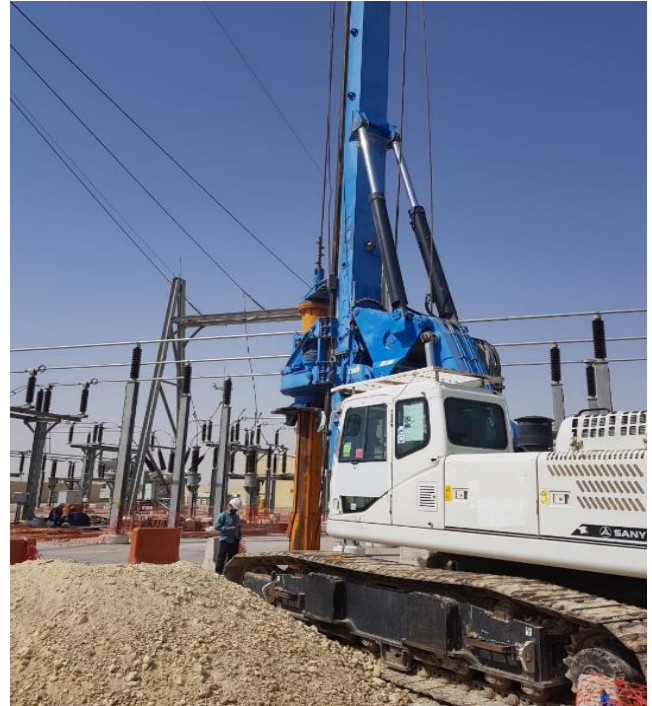
CONCRETE PILE SPLICES

Spicing is called for when pile length required are long for trucking or driving in one piece with available equipment, or if there is a headroom restriction. A pile may have one or more splices. The splice should be capable of resisting stresses induced by driving, and conditions. Tensile stresses are highest when resistance to driving is low and tensile waves are reflected back up the pile.



HYDRAULIC PILING RIG (SANY SR200C)

Moment capacity is particular important in high seismic zones, in piles possibly subject to impact, and in difficult driving conditions. Not all splices will develop tension and/or moment capacity.



SECANT PILES

Secant pile are constructed so that there is an intersection of one pile with another. The usual practice is to construct alternative piles along the line of the wall leaving a clear space of a little under the diameter of the required intermediate piles. The exact spacing is determined by the construction tolerance which can be achieved. These initially placed piles do have to be constructed to the same depth as the intermediate piles which follow, depending on the way in which the wall has been designed and reinforced.

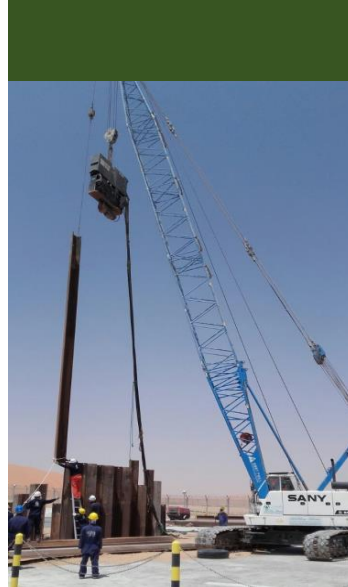
Concrete is added and before it has fully set the intermediate holes are drilled along a parallel, but slightly offset, line so that the holes cut into the first piles. The intermediate piles are placed through a heavy casing whose cutting edge is toothed and enables the casing to cut into the concrete of their initial piles on either side. Subsequent concreting results in a continuous wall. The concrete chosen will often have a slow rate of setting in order to ease the problem of cutting one pile into another.

No.	HEAVY EQUIPMENTS
1.	CRAWLER CRANE 50 TON (SANY SCC500E)
2.	POWER PACK & ACCESSORIES (ICE 600)
3.	VIBRO PILING HAMMER (ICE 815C)
4.	HYDRAULIC PILING RIG
5.	STEEL SLEEVE
6.	CORNER LOCK SHEET PILES

SHORING SYSTEM

Foundation pipe driving installs driven sheet pile and soldier pile-lagging shoring system as well as ground water cutoff walls and geo-containment systems. We provide pricing on designed shoring system, and also provide full design-build shoring services. We understand that the selection of the correct shoring system has an effect on the project as a whole, and that the most cost-effective shoring system alone may not always produce the lowest cost to the project. Our crews consist of certified welders to ensure that walers and struts are installed correctly. When walers are required, we can help examine all alternatives from internally braced walers, to staged raker construction, to helical anchor tiebacks. We ask the right questions and work you to determine the best system for the project.

We also work with grading and dewatering subcontractors to put a complete shored-excavation project together. Vinyl sheet piles have seen recent expansion in use, as they are used as landscape wall retaining systems or as ground water cutoff walls, or as the core of dykes and levees. Driven vinyl sheet require a different approach and an expertise unlike steel, and we have successfully completed many of these unique projects. Our fundex equipment is used for slurry- cement cutoff walls, which offer near complete ground water cutoff for shored excavation or ground water containment for hazardous sites.

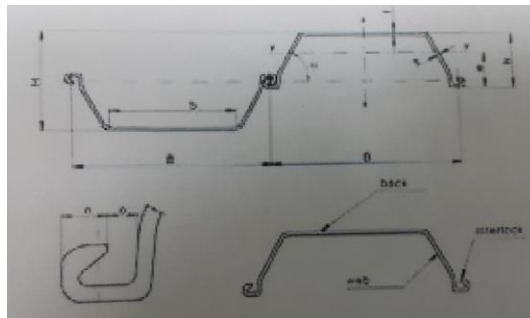


Sheet piling

Sheet piles are panels with interlocking connections, driven into the ground with either an impact or vibratory hammer. Sheet piling is rarely part of the permanent structure but provide structural resistance in deep excavations. Although steel pile walls have been proven effective. Newer such as vinyl, plastic, recast concrete and fiberglass have proven to be as effective and often less expensive.



No.	DRILL TOOLS & SHEET
1.	AUGER EARTH DRILL
2.	PILE CUTTER
3.	SHEET PILES
4.	I – BEAMS
5.	STEEL SLEEVE
6.	CORNER LOCK SHEET



Sheet piles are long structural sections with a vertical interlocking system that creates a continuous wall.

The walls are most often used to retain either soil or water. The ability of a sheet pile section to perform is dependent upon its geometry and soils it is driven into the pile transferred pressure from the high side of the wall to the soil in front of the wall. There are permanent and temporary applications. Permanent sheet piles remain in the ground and serve as permanently retaining structures. Temporary sheet piles are designed to provide safe access for construction, and are then removed.

Hot rolled and cold formed are two primary methods of manufacturing sheet pile. While there are key differences between these two methods. The most important distinction is the interlock. Since hot rolled sheet piles are produced from steel at high temperatures, the interlock tends to be tighter than its cold formed counterpart. Normally, looser interlock is not recommended in extremely hard driving conditions or for walls required low permeability. Hot rolled sheet piles are generally larger and have a broader range of strengths than cold form sheet piles, but there is a large overlap between the two, especially in the most common size.

G. DEWATERING – The process of removing water

Dewatering is defined as the removal of the natural groundwater to a level below the normal water table to enable construction to be carried out in the dry or is the removal of water from solid material or soil by wet classification, centrifugation, filtration, or similar solid-liquid separation process, such as removal of residual liquid from a filter cake by a filter press as part of various industrial processes.

Construction dewatering, un water, or water control are common terms used to describe removal or drain groundwater or surface water from a riverbed, construction site, caisson, or mine shaft, by pumping or evaporation. On a construction site, this dewatering may be implemented before subsurface excavation for foundations, shoring, or cellar space to lower the water table. This frequently involves the use of submersible “dewatering” pumps, centrifugal (“trash”) pumps, educators, or application of vacuum to well points.

Huding

Drilling Works Contracting Co, specialize in the supply of vacuum well point dewatering equipment turn-key services. Our vacuum assisted well point pumps and dewatering systems are available on an equipment rental and sale bases, and are recognized for their reliability and energy/environmental efficiencies

Drilling Works Contracting Co, primarily utilizes abroad diversity of applications, this includes high to low volume, high head discharger capabilities, high vacuum applications and extreme environmentally sensitive applications for use in construction dewatering, dual phase extraction and creek/river bypass applications.



DEWATERING PUMPS

These pumps are recognized worldwide for their super quality as well as their operational capabilities, which is in line with the standard that Drilling Works Contracting Co, expects in delivering exceptional services to its clients and wider industry.

No.	DE-WATERING PUMPS
1.	HUDIG – DE-WATEWRING PUMP
2.	UPS – DE-WATERING PUMPS

Deep well system

The deep well system is also a versatile pre drainage dewatering system which can pump high and low volumes of groundwater. This method is best suited to homogeneous aquifers that extend well below the bottom of the excavation.



Deep well system consists of one or more individual's wells, each of which has its own submersible pump at the bottom of the well. Deep well systems are suitable for water-table or confined aquifers and will lower the water table 100 feet or more in a single lift without staging.

Drilling Works Contracting Co, offers effective and innovative turn-key solutions to groundwater control problems using Deep Wells. We offer a full professional service from initial design, drilling, supply and installation of pumping equipment together with all associated appurtenances.

Advantages

1. Ability to penetrate strata impervious to the jetting method of well point systems.
2. Installation of up to 100 feet deep or more in a single stage.
3. Capable of pumping tens to thousands of gallons per minute per well.
4. Deep Wells can be effective when placed outside of the jobsite work area.

Deep well dewatering systems are used when large volumes of groundwater must be pumped highly permeable soils result in rapid recharging of the aquifer, and/or the depth of excavation excludes other dewatering methods.

Well point installation procedure

Well point dewatering involves the installation of riser pipes with a filter section on the lower 1.0 m portion, connected to a common header pipe from which the water can be pumped by self-priming centrifugal pump into the discharge system.

uPVC riser pipes shall be driven into the ground through the use of water pressure. The jetting pump is corrected to a lance through which high-pressure water is injected into the ground, forming a borehole into

which the well point can be installed. The lance is rotated to create a gap around the well point. Well points are to be installed every 1.0 m.

Once the well point has been installed, the lance is held in position until the water being ejected out through the top of the borehole runs clean.

uPVC riser pipe shall be inserted into Pre-Drilled Bore Holes. The bore holes are made using a hydraulic 150 mm core drill machine, anchored, and powered from a suitable excavator with an 8.0m reach and hydraulic accessory take off points on the main dipper arm. Once the borehole has been drilled to the desired, the well points can be inserted. Well points are to be inserted every 1.0m.

Upon completion of the installation of pre-determined number of well points, the well points shall be connected to the header pipe network by means of flexbows, which in turn, is connected to the dewatering pump.

The collected water produced by the ground water control system shall be discharged header main which feeds the water to the settlement tank arrangement prior to discharging to waste < pond –sea-storm water.

Submersible pump

A submersible pump (or electric submersible pump (ESP) is a device which has a hermetically sealed motor close-coupled to the pump body. The whole assembly is submerged in the fluid to be pumped. The main advantage of this type of pump is that it prevents pump cavitation, a problem associated with high elevation difference between pump and the fluid surface. Submersible pumps push fluids to the surface as opposed to jet pumps having to pull fluids. Submersible are more efficient than jet pumps.

Applications

Submersible pumps are found in many applications, Single stage pumps are used for drainage, sewage pumping, general at industrial pumping and slurry pumping. They are also popular with aquarium filters. Multiple stage submersible pump is typically lowered down a borehole and used for water abstraction, water wells and in oil wells.

Submersible pumps are used in applications, including sewage treatment plants, seawater handling, groundwater pumping, firefighting (since it is flame retardant cable, bore hole drilling and pumping, water well and deep well drilling, offshore drilling rods, artificial artificial lifts, mine dewatering. Irrigation system, and water systems.

Special attention to the type of ESP is required when using certain type of liquids, Pump used for combustible liquids or for water that may be contaminated with combustible liquids must be designed not to ignite the liquid or vapors

H. VERTICAL DRILLING (WATER & CATHODIC PROTECTION)

VERTICAL DRILLING

We Provide a Complete Competitive Service for all Water & Geothermal needs.

1. Water Well Drilling
2. Domestic Supplies
3. Commercial Supplies
4. Geothermal



- We construct wells to the Highest Standard in Drilling Domestic, **Farm** and **Commercial/Industrial Wells** and **Pump Systems**. We Construct Boreholes and Install the Earth
- Loop Probes for Geothermal Systems.
- We provide a Nationwide Water & Geothermal Drilling Service.
- We can assist you with information on available for Water Well Geothermal Systems.

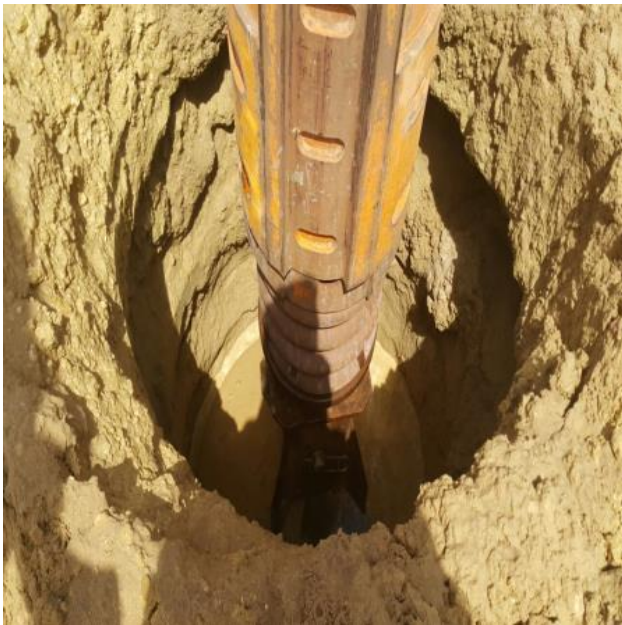
CATHODIC PROTECTION DEEP ANODE DRILLING

Drilling Works Contracting Co are approved by ARAMCO OIL COMPANY for Cathodic Protection Drilling of deep anodes and over heads power lines on them maintain potential contracts.



OVER HEAD POWER LINES

Pole Hole Excavation for Over Head Cab



I. ROBOTIC COATING SERVICES

INTERNAL & EXTERNAL FIELD GIRTH WELD COATING SERVICES

- Our coating equipment product lines are complete from 8 inches pipe size diameter to 60 inches pipe size diameter both for internal and external field coating application process. It is consist of line travel robotic cleaning, robotic coating and inspection robot.
- It is equipped and run with the help of wireless remote control, which send signal to the process brain to perform cleaning and coating activities as well as inspection.
- This custom made robotic coating machine and equipment is develop through intensive research, feedback and recommendation from the experience field girth weld coating personnel. Developed to make sure an even distribution of coating on the girth weld resulting to even measurement of required coating thickness all around the surface of the internal field girth weld.
- Cycle levels are adjustable with an average coating application time of 24 seconds per cycle process for FBE and 15 seconds per cycle process for liquid. It travel at the rate of 24 m/min or one minute between girths weld joint to joint of double joint pipe.
- External coating equipment was developed also to give even application of Coating to entire external field girth weld surface. It is run using semi-automatic control process.





Internal Equipment Overview:

Internal Girth Weld Coating Equipment Set:

Equipped with two (02) nozzles coating head applicator for faster 360 degrees coating application. High definition cameras for line travel and coating application process. Equipped with variable coating cycle system. Powered by 4 SBS batteries.

Internal Girth Weld Cleaning Equipment Set:

Capable of cleaning cut back area and preparing SA3 profile after welding to SA 2-1/2. Equipped with variable cleaning cycle system. High definition camera for Line travel and pre coating inspection. Can be set to do re-vacuum process only. Powered by 4 SBS batteries.

Internal Girth Weld Inspection Equipment Set:

Holiday detector and DFT gauge equipped. Camera for 360 degrees' inspection and monitoring process. Video results can be recorded in wireless control system recorder. Powered by 2 SBS batteries.

Wireless Control System Overview:

- Wireless Hand-held remote control system with embedded video.
- Main controller with three different configurations for coating, cleaning and inspection.
- Encoder command, speed and distance control unit
- A three Frequencies Communication System
- Wireless command tower - include router, video network unit, RS232 unit,



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wireless video and data transmitter receiver

ROBOTIC EQUIPMENT

Induction Heating Coil



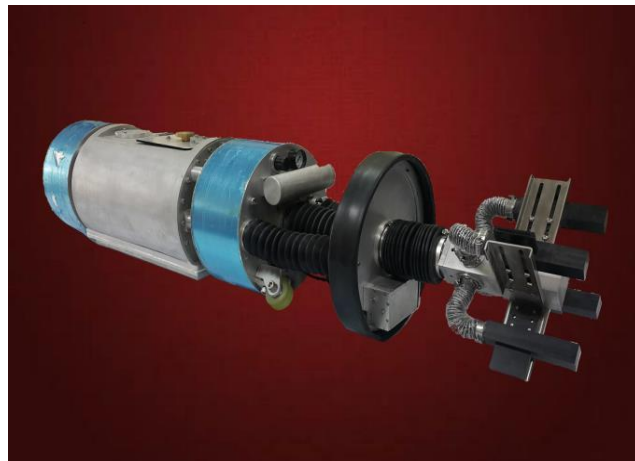
Internal Actuator Module



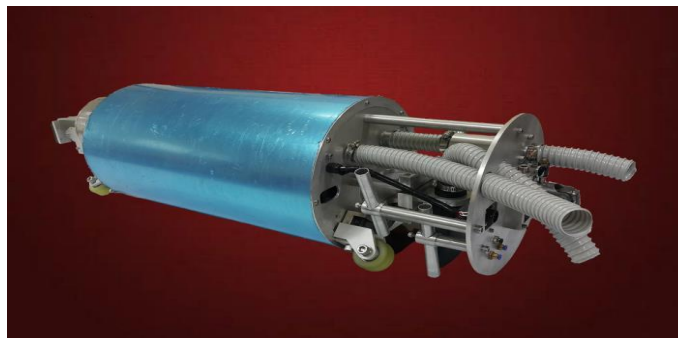
Internal Cleaning Module



Internal Coating Module



Internal Vacuum Module



ROBOTIC EQUIPMENT

Induction heating coil



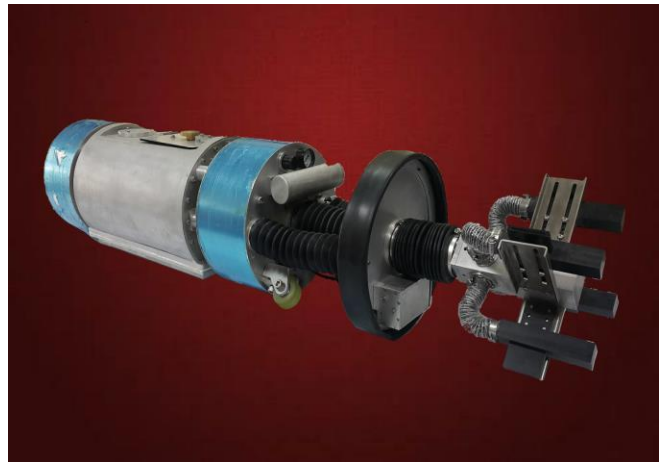
Internal Actuator Module



Internal Cleaning Module



Internal Coating Module



Internal Vacuum Module





Equipment Technical Specifications Overview

INTERNAL EQUIPMENT

CLEANING MODULE

- 260mm Ø cleaning head for powerful centrifugal force
- 3000 RPM motor
- Linear actuators with sensors for Cleaning Head adjustable linear movement
- Transmission system for faster cleaning head rotation
- Ramp circuit for gradual start-up

COATING MODULE

- Faster application with a 2-spray nozzle coating head
- Gear motor for coating head rotation
- Air compressor for pneumatic valve & seal air supply
- High resolution camera for line travel & girth weld spotting
- Video transmitter
- Powder block with adjustable flow gate for precise flow rates.

INSPECTION MODULE

- Holiday detector
- DFT Gauge
- High resolution camera girth weld inspection
- Stepper motor for camera angle (360°)
- Air compressor for pneumatic valve
- Solenoid valve
- Pressure switch

VACUUM MODULE

- Change-over valve for grit suction & discharge (cleaning) operation
- Compressor drive motor
- Vacuum blower for grit suction
- Air compressor for change-over valve air supply
- High resolution camera for pre-coating inspection
- Video transmitter
- Stepper motor for camera angle (360°)
- Adjustable polycarbonate vacuum head



(WCS) WIRELESS CONTROL

SYSTEM AND HARDWARE

- Wireless Hand-Held Device Unit.
- Provide video and command control to wireless command tower.
- Wireless mini command tower - include router, video network unit, RS232 unit, wireless video and data transmitter receiver
- Process control unit.
- Encoder command and distance control unit
- Speed control

EXTERNAL EQUIPMENT

EXTERNAL APPLICATOR

- AC powered geared motor for 360° rotation
- Latching mechanism for quick locking and releasing from the pipe
- Control box unit for applicator movement control
- Minimum of two (2) Coating Head (varies as the pipe diameter size gets bigger)

INDUCTION HEATING COIL

- Latching mechanism for quick locking and releasing from the pipe
- Fiber wood for electrical connection terminal
- Welding cable for wrap around heating coil
- Customize coil connector for current flow continuity
- High temperature wheel for easy line travel transferring from joint to joint

FLUID BED

- Custom-built external powder block with adjustable flow gate for powder control
- Air pressure regulator for air flow control for powder blowing and powder fluidization
- Air cylinder tank for air supply reservoir
- Electronic air valve for automatic on/off of air supply for both powder-delivery for coating process and powder fluidization.
- Control box for fluid bed operation.



Field Application Process

Process Summary:

1. Cleaning Process
2. Coating Process
3. Inspection Process

Cleaning Process – As soon as the pipe line is ready and free of any unwanted materials or object inside. The robotic cleaning machine start cleaning process in each girth weld by using high speed spin blast which throw abrasive materials. The spent materials then will be removed by the vacuum attached to the internal cleaning unit and after vacuum, inspection and recording will follow using high definition camera attached also to the cleaning unit to make sure the welds are cleaned and no abrasive materials left on the weld area. 360-degree inspection were applied to every weld to make sure the accuracy of cleaning. After Cleaning the whole string and verified that it is set to go for coating application it will move to the next pipe string to start cleaning again.

Coating Process – On this stage the girth weld now is clean and ready for coating. In this process the girth weld will be subject to heating by means of induction heating using induction coils prior to coating application. Internal robotic machine will be guided by camera for the girth weld to be coat and as soon as it is aligned, the operator will start coating process. Post cure heating will be applied after internal coating is done which is also the applied temperature for external coating. Same process is involving in Liquid application except that there is no application of heat on the pipe girth weld itself but instead the base and the hardener is the one subject to its required heat application base on its data sheet.

Inspection Process – this is the process in which the applied internal coating is subject for holiday test, coating thickness measurement and real time visual inspection of the applied coating if there is any abnormalities on the surface of the applied coating.

EXTERNAL COATING PROCESS

At this stage right after the internal coating process is done, and post curing heating (application temperature of external coating also) has been applied to cure internal coating, the external coating process could begin; starting the application of external coating right away. The induction coil is placed over the girth weld. The pipe is heated at a temperature recommended by manufacturer.

The external applicator is positioned near the heating coils. The induction coil moved to the next joint and the external applicator is positioned over the girth weld. FBE powder is blown onto the heated joint where it melts and bonds to the steel pipe providing a smooth, even coating thickness with no runs or sags

INTERNAL & EXTERNAL FIELD GIRTH WELD ROBOTIC FBE COATING COMPLETED PROJECTS

S.NO	DESCRIPTION OF PROJECTS	INTERNAL JOINTS	EXTERNAL JOINTS	CLIENT	PERIOD OF PERFORMANCE
1	16"Ø Internal & External field girth weld robotic FBE coating - Mazalij – Abu Jifan Pipeline Al Crude Increment Project	1,488	1,211	ARAMCO / ARKAD	2017/2018
2	18"Ø Internal & External field girth weld robotic FBE coating - Mazalij – Abu Jifan Pipeline Al Crude Increment Project	204	108	ARAMCO / ARKAD	2017/2018
3	26"Ø Internal & External field girth weld robotic FBE coating - Mazalij – Abu Jifan Pipeline Al Crude Increment Project	366	100	ARAMCO / ARKAD	2017/2018
4	16"Ø Internal field girth weld robotic FBE coating - OMPP NA2 Project, Qatif Central Processing Facility Plant	60	-	ARAMCO / ARKAD	2017/2018
5	56"Ø Field external girth weld FBE coating – Master Gas System, Riyadh-Madinah East-West Pipeline Project	-	29 (Tie in joint)	ARAMCO / ARKAD	2017/2018

Equipment Sizes

External Field Coating Equipment

- 8 Inches Pipe Size
- 10, 12 Inches Pipe Size
- 16, 18, 20, 22 Inches Pipe Size
- 24, 26, 28, 30, 32, 34 Inches Pipe Size
- 36, 38, 40, 42, 44, 46, Inches Pipe Size
- 48, 50, 52, 54, 56, 60 Inches Pipe Size

56 Inch External Field FBE Girth Weld Coating



26 Inch External Field Coating



16 Inch External Field Coating





Internal Robotic Field Coating Equipment

- 8 Inches Pipe Size
- 10 - 12 Inches Pipe Size
- 16 - 22 Inches Pipe Size
- 24 - 34 Inches Pipe Size
- 36 - 46 Inches Pipe Size
- 48 - 60 Inches Pipe Size

26 Inch Field Robotic Internal Cleaning & Coating



16 Inch Field Robotic Internal Cleaning & Coating





شركة أعمال الحفر
Drilling Works Contracting Co

Field Girth Weld Coating Equipment

External Field Coating Equipment

- External Coating Applicator
- Heating Induction Coil
- Fluid Bed
- Induction Generator
- Portable Compressor
- Air Receiver tank
- Air Drier

Internal Robotic Field Coating Equipment

- Internal Cleaning Equipment Set
- Internal Coating Equipment Set
- Internal Inspection Equipment Set
- Wireless Control System (WCS)

Our highly trained technicians are experienced in the following applications for offshore & onshore:

- Internal & external field weld coatings
- Shop applications for internal and external coating
- Coating inspection



Saudi Aramco E-Reference No. 0001881

Registration Approval Letter

January 14, 2020

Attention : DRILLING WORKS CONTRACTING COMPANY

CR Number : 2051226462
Country : Saudi Arabia

We are pleased to inform you that DRILLING WORKS CONTRACTING COMPANY is now registered in the Saudi Aramco Supplier Management System under Vendor Code No. 10065947, provided your company continues to meet all relevant Saudi Arabian and Saudi Aramco standards.

This registration, however, should not be construed as a commitment by Saudi Aramco to procure from you. Being registered as a supplier only grants your company the opportunity, along with other registered sources, to respond to requests for submitting proposals in accordance with Saudi Aramco's established policies and procedures. All procurement instruments including but not limited to service contracts, purchase agreements, or purchase orders will be issued based on the name and address included in your commercial registration (CR), as stated in your Supplier Registration.

Saudi Aramco wishes to remind you that being recognized as a supplier carries with it serious obligations and responsibilities to act in a legal and ethical manner. We wish to remind you of the Saudi Aramco Supplier Code of Conduct (SCOC) which you acknowledged. Failure to abide by the principles set forth in the SCOC can result in adverse actions being taken by Saudi Aramco against you including suspension of you as a supplier. Saudi Aramco also expects each of its suppliers to satisfy each of the requirements of any procurement instrument which might be placed and to act responsibly and reliably as a supply chain supplier.

Material Suppliers should apply for Saudi Aramco Supplier Portal access by forwarding a request to portal-registration@aramco.com. The Supplier Portal is the main electronic business tool used between Saudi Aramco and its suppliers and serves to improve the flow and accuracy of key supply chain information.

For further information or assistance please contact the Saudi Aramco Supplier Help Desk by forwarding a request to SupplierHelpDesk@aramco.com or via the unified call center +966 (13) 874-2222.

Nader Hmoud Al Issa, Supervisor
Document Control Group
Document Control Group

It is the responsibility of the supplier to update Saudi Aramco Supplier Registration Profile through Ariba for the following:

1. Change of Name / Commercial Registration Number / Address / Owner(s)
2. Any change of the supplier location
3. Discontinue supply of approved commodities (9COMs and 9CATS)

This is an electronically generated letter by Saudi Aramco. To verify Supplier approval status, please contact Supplier Help Desk at supplierhelpdesk@aramco.com



شركة أعمال الحفر

Drilling Works Contracting Co

COMMERCIAL REGISTRATION



وزارة التجارة
Ministry of Commerce



الرقم: ٢٠٥١٢٢٦٤٦٢

التاريخ: ١٤٤٠/١٠/١٦ هـ

شهادة تسجيل الشركة

الرقم الموحد للمنشأة: ٧٠١٥٣٨٢٩٣٥

الاسم التجاري للشركة: شركة أعمال الحفر للمقاولات

نوعها: ذات مسئولية محدودة

جنسيتها: سعودي

وتنتهي في: ١٥٢٣/٠٧/٢٢ هـ

تبدأ من: ١٤٤٠/١٠/١٧ هـ

مدة الشركة: ٩٠ سنة

مركزها الرئيسي: ٣٣٤٧، طريق الظهران، الثقبة، ٩٠١٥

ص ب: ٣٤٦٢٣ الرمز البريدي: ٣٤٦٢٣ هاتف:

النشاط: للاطلاع على بيانات الأنشطة الرجاء مسح الرمز التجاري

رأس المال: ١٠٠٠٠٠٠ ريال سعودي

المديرون: ١ فهد إبراهيم فهد الحبر

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سلطات المدير/المديرون: حسب ما نص عليه عقد الشركة

يشهد مكتب السجل التجاري بمدينة: الخبر

الخبر

وتنتهي صلاحية الشهادة في: ١٤٤٣/١٠/١٦ هـ بموجب الإيصال رقم: ٨٠٣٨٨٩٥٢ وتاريخ: ١٤٤٢/١٢/٠١ هـ

مدير السجل التجاري للشركات: عبد المحسن بن إبراهيم الحماد

التوقيع:



To Verify the information of this certificate visit <http://v.mci.gov.sa> على صفحة هذه الشهادة بالدخول



شركة أعمال الحفر
Drilling Works Contracting Co

CONTRACTORS INFORMATION

Contracts Name : Drilling Works Contracting Co.

Contractors Address : Al Dossary Building, 5th Floor,
Door No: 503, P.O. Box 34623,
Dhahran -Khobar Highway,
Al Khobar-9015, Kingdom of Saudi Arabia.

Contractors Contact : Mr. HADI DAGHER
HDD Project Manager

Commercial Registration No: 2051226462

Mobile No. : +966 50 987 7186 (KSA)

Landline : +966 13 8970926 / 8994309

Fax : +966 13 8934717

Email : hadidagher1@hotmail.com

Website : www.drillingw.com