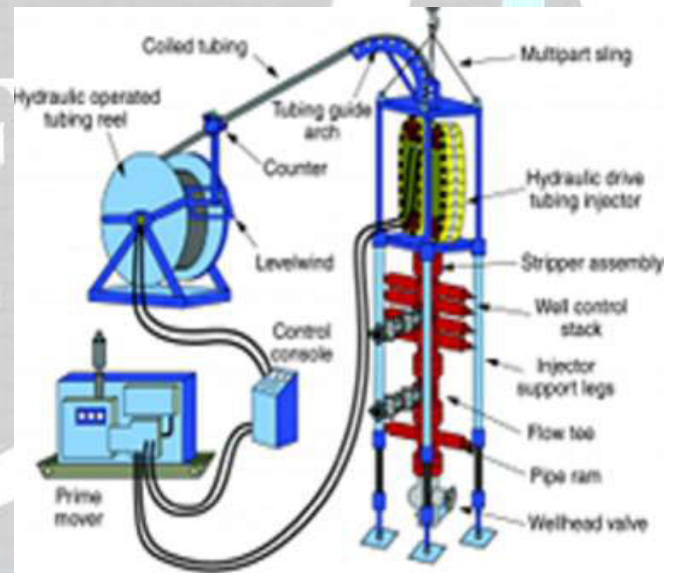
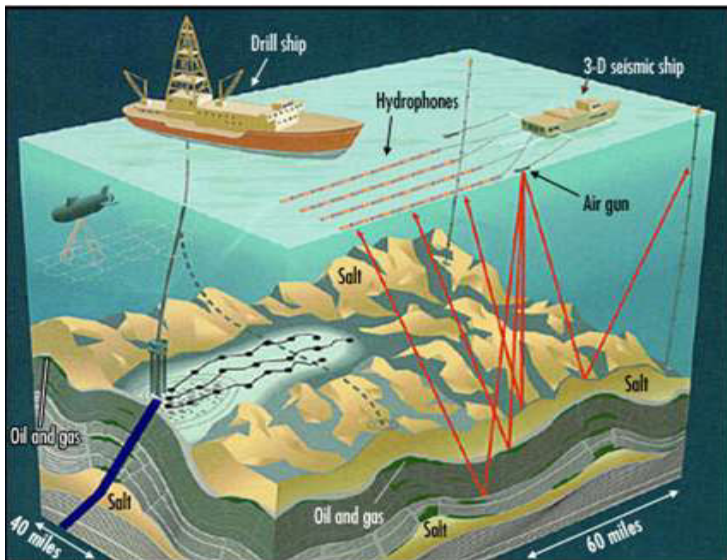


## F. Energy, Oil & Gas



**SURF**<sub>WORLDWIDE</sub> Energy, Oil & Gas Sector is run by **SURF**<sub>WORLDWIDE</sub> Petroleum Services (SPS) subsidiary with multiple offices based in many countries; Turkey, Egypt, GCC & USA; which is a Specialised entity established to add a new value to the business of Oil and Gas industry lifecycle through a wide range of services & fleet of supplies to the upstream and downstream, onshore and offshore implementing an innovative solutions & state-of-the-art proprietary technology by a global network of highly experienced and well-trained team. It is well equipped to cater the requirements of Exploration, Drilling, Workover, Production, Well Services, Surveillance, Integrity & Intervention in the industrial and energy markets worldwide safely and efficiently. **SURF**<sub>WORLDWIDE</sub> is acting as a specialized global supplier & service provider for a wide range of materials, products and services to the oil & gas industry through our business partners & principals.



# SURF WORLDWIDE



## Products and Services

**SURF WORLDWIDE** believe in working with the customers closely to understand their objectives and in combining the best industry standard products with our own unique world-leading technology to meet the customers' business needs.

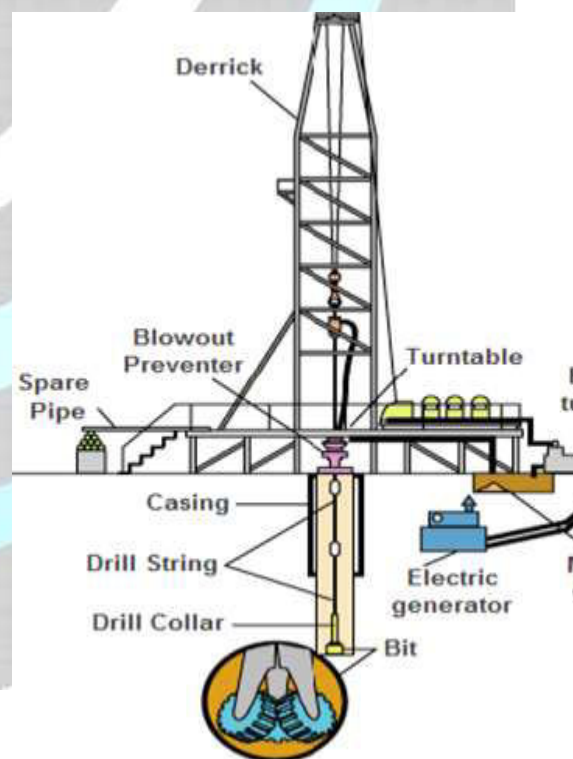
**SURF WORLDWIDE** has a very strong access and communications network with multiple major manufacturers and first-class mills worldwide specialized in producing a very high-quality materials and products in accordance with the best oil & gas practices & API standards that meets the customer specific requirement and applications. Furthermore, **SURF WORLDWIDE** also have a wide range of equipment and personnel to render a high-quality service to the oil & gas industry.

### I. Materials & Supplies

**SURF WORLDWIDE** can supply the following fleet of products and materials at a highly focused, quality-driven service to the Oil & Gas Well upstream that makes our customers keep working with us again and again.

**SURF WORLDWIDE** has an existing setup with direct communications with the producers, mills and factories and therefore can supply a wide fleet of commodities at the best & premium quality to the Drilling Industry in accordance with latest applicable API & ISO Standards includes the following:

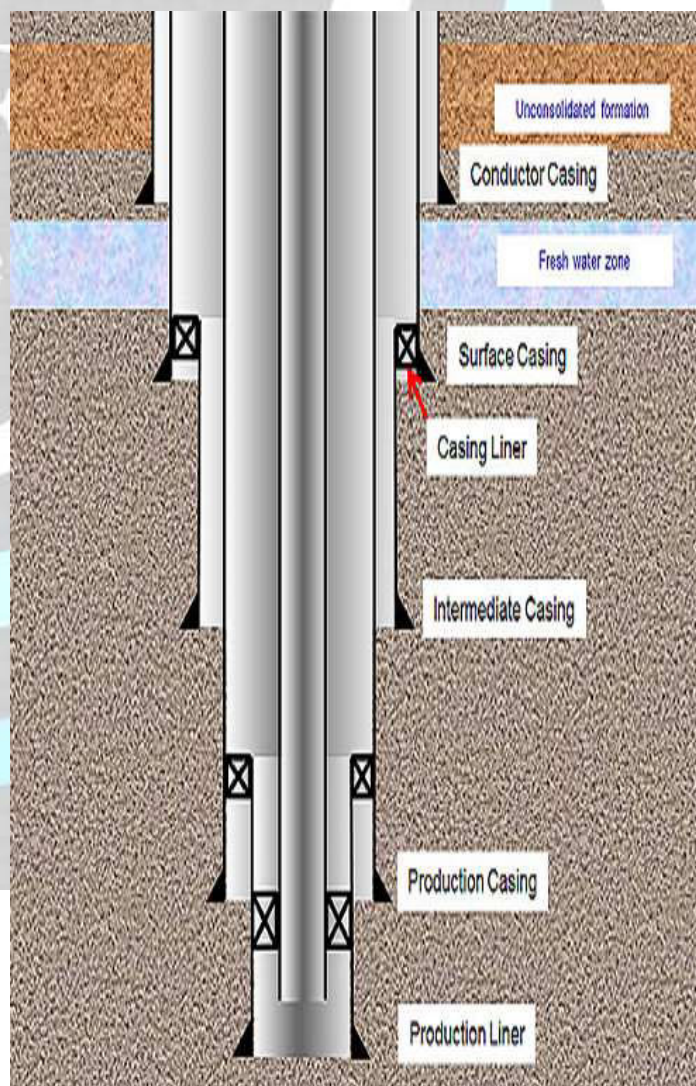
1. OCTG & Accessories,
2. Wellhead, X-Mass Trees, Control Equipment,
3. Slickline & Wireline Equipment & Services,
4. Solids Control & with Zero Discharge System,
5. Fluids, Chemicals & Engineering Services,
6. Downhole Completion & Downhole Drilling Tools, Drilling Rigs Operations, Transportation & Logistics,
8. Process Calibrators for Milliamp, Thermocouple, RTD, Frequency, Voltage & Pressure,
9. Miscellaneous Equipment (Hammer Unions, Plug Valves, Choke Valves, Manifolds, Flanges, Swivel Joints, Pup Joints, X-Overs & Couplings),
10. Manpower Supply IT, Software, and Technical & Commercial Consultancy Services.





## 1. Casing & Tubing Pipes and Accessories:

- SURF WORLDWIDE can supply all Conductors ( 36", 30", 26", 24", 20") (ERW & Seamless), Seamless Casing & Tubing Pipes (20", 18-5/8", 13-5/8", 13-3/8", 9-5/8", 7", 5-1/2", 5", 4-1/2", 3-1/2", 2-7/8", 2-3/8") with X-Overs, Pup Joints to the Oil & Gas well Drilling Operations in all grades (K-55, N-80, L-80, etc), connections (BTC, N.VAM, VAM TOP, TSH , VAM 21, VA SUP, etc) & ranges in accordance with API 5CT.
- SURF WORLDWIDE can supply all CRA materials & alloy steel as well as API grades with premium gas tight connections at 100% performance efficiency of the tensile strength and compression for both the body & connections which suit all H<sub>2</sub>S Sour services & CO<sub>2</sub> at High Pressure High Temperatures (HPHT) conditions.
- SURF WORLDWIDE can support the client in the casing selection by casing design to assure the best casing selection valid & suitable for the application.
- The Delivery time of commodity supply regularly ranges from 4 up to 13 months based on:
  1. The Supply from Stock Item or as a Mill-Run Item,
  2. The Grade (API or CRA material),
  3. The Connection (API or Premium),
  4. TPI & QAQC standard or special requirement (special beveling, special size or drift, special performance of pipe, ...etc.), & The Purchase Order Quantity,



## 2. Casing Packers, Float Shoe, Collars & Centralizers:

- SURF WORLDWIDE is able to supply most of the Casing Packers, Liner Hangers, Float Equipment & Accessories in different sizes, grades & connections which suits various applications in normal and sever downhole conditions.
- SURF WORLDWIDE can supply the casing packers/hangers with all materials & alloy steel grades along with the required API or premium gas tight connections at 100% performance efficiency of the tensile strength and compression for both the body & connections that suits all H<sub>2</sub>S Sour services & CO<sub>2</sub> conditions at High Pressure High Temperatures (HPHT).
- SURF WORLDWIDE is able to support the clients in the proper casing accessories selection during the casing design to assure the best selection valid & suitable for the client application in oil, gas or water well.
- SURF WORLDWIDE Casing Accessories supply include the following items:

### 1. Casing Centralizers

SURF WORLDWIDE can supply the following casing centralizers to the oil & gas industry for various applications:

#### A. Hinged, Non-Welded, Bow Spring Centralizer

This centralizer features straight, non-welded bow springs that are attached with rivets onto the hinged end collars. Normally run over a stop collar or coupling, this centralizer uses hinge pins to secure the hinged designed end collars together around the casing.

#### B. Hinged, Non-Welded, Bow Spring Centralizer With Turbo Fins

This centralizer consists of straight, non-welded bow springs with the addition of spot-welded turbo fins that are attached to the bow springs. The turbo fins induce a spiral flow pattern to cement slurry and assist in the removal of mud cake and help to reduce the channeling during cementing operations with the following features:

- API Spec. 10D rated
  - Hinged design with a more aggressive bow profile on each end
  - Minimum starting force, and high restoring force
  - Improved turbulence in annulus by utilization of turbo fins
  - Centralizers are designed and tested for the specified casing and hole size combinations. Any attempt to run through smaller restrictions may cause excessive starting force and/or damage.
  - Manufactured to customer specifications upon receipt of order
- Therefore, customer need to specify casing, hole and restriction sizes when ordering.

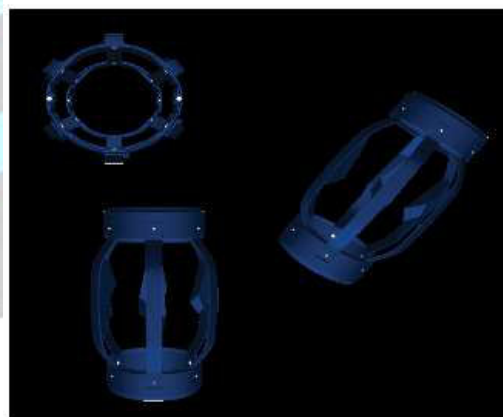
#### Technical Data Sheet

Casing Sizes	2-7/8" to 24"
Collar Material	A569/ A1011
Bow Spring Material	AISI 4130

#### Hinged, Non-Welded, Bow Spring Centralizer



#### Hinged, Non-Welded, Bow Spring Centralizer With Turbo Fins





## C. Hinged, Non-Welded, Positive Bar Centralizer:

The Hinged, Non-Welded, Positive Bar Centralizer formed of straight formed positive bars which are attached using rivets onto the hinged end collars are used to firmly attach the collars to the casing with the following features:

- Suitable for horizontal and directional well designs
- Favourable in cased hole situations,
- Not to be run around couplings or stop collars,
- Hinged design with positive steel bar mechanically attached to hinged end collars,
- The Centralizers are designed for the specified casing and hole size combinations. It is strictly forbidden to any attempt to run the centralizers through smaller hole sizes as it will cause excessive damage,
- Can be Installed between two stop collars, or a stop collar and coupling,
- Are manufactured to customer specifications upon receipt of order. Therefore, customer need to specify casing, hole and restriction sizes when ordering.

### Technical Data Sheet

Casing Sizes:	4-1/2" to 24"
Collar Material:	A569/ A1011
Vane Material:	A36

## Hinged, Non-Welded, Positive Bar Centralizer



## D. Hinged, Non-Welded, Dual Contact Bow Spring Centralizer:

The double bow design makes it ideal for the small-clearance situations with the following features:

- Suitable for the horizontal and directional well applications,
- API Spec. 10D rated,
- Hinged design with a dual contour bow profile which allows for easy installations,
- Little to no starting force, and high restoring force,
- Centralizers are designed and tested for the specified casing and hole size combinations. It is strictly forbidden to any attempt to run the centralizers through smaller hole sizes as it will cause excessive damage,
- It is manufactured to customer specifications upon receipt of order. Therefore, customer need to specify casing, hole and restriction sizes when ordering.

### Technical Data Sheet

Casing Sizes	2-7/8" to 24"
Collar Material	A569/ A1011
Bow Spring Material	AISI 4130

## Hinged, Non-Welded, Dual Contact Bow Spring Centralizer:

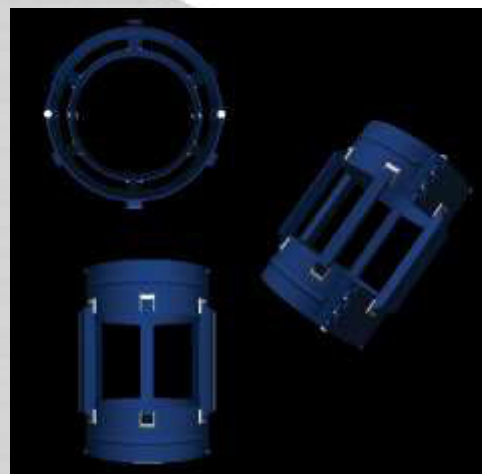


## **E. Positive, Rigid, Welded Centralizers:**

The positive, rigid, welded centralizers provide positive casing standoff for vertically deviated and horizontal wells. It can be supplied in numerous configurations, from hinged to slip-on and from straight-bladed to spiral design. The supplied rigid centralizers prevent differential sticking and increase hole cleaning through the enhanced flow created. Rigid bars are welded to the centralizer collars to provide lasting strength and stability with the following features:

- Recommended in cased hole situations,
- Centralizers designed for specified casing and hole size combination. Any attempt to run through smaller restrictions will cause damage

## **Hinged, Welded, Positive Bar Centralizer**



### **i. Hinged, Welded, Positive Bar Centralizer:**

This Centralizer utilizes straight steel bars welded onto hinged end collars that secure it to the casing, usually between two stop collars. The hinged design provides easy installation for a fast, effective centralization solution & rotates freely on the pipe.

## **Hinged, Welded, Positive Bar Centralizer with Set Screws**

### **ii. Hinged, Welded, Positive Bar Centralizer with Set Screws:**

This Centralizer retains the hinge pins and positive steel bars found on the design of above centralizer. It adds evenly spaced integral set screws around the end collar to provide holding force and eliminate the need for stop collars.

- Recommended to run between two stop collars or one stop collar and casing coupling
- Hinged design with positive steel bars welded to hinged end collars,
- Set screws recommended to be used on casing grades of P110 or below,
- Install by evenly tightening set screws in a “star pattern” to prevent collar deformation, then torque set screws in the leading end collar to a maximum of 25ft. -lbs., or install centralizer between two stop collars,
- Centralizers are manufactured with a positive O.D. of not less than 1/4” below the hole size,
- It can be manufactured to the customer specification upon receipt of purchase order Specify casing, hole and restriction sizes when ordering.



### **Technical Data Sheet**

Casing Sizes:	2-3/8” to 24”
Collar Material:	A565 / A1011
Bar Material:	A36

### iii. Slip-On, Straight Blade, Rotating Liner Centralizer:

This centralizer consists of two slip-on, three-inch collars with straight steel bars welded onto the outside of the collars. Running it between two stop collars provides the casing with a smooth bearing surface that allows the pipe to be freely rotated and run with minimal drag.

#### Slip-On, Straight Blade, Rotating Liner Centralizer



### iv. Slip-On, Spiral Blade, Left Hand Rotating Liner Centralizer:

This Centralizer mimics the above centralizers slip-on, three-inch collars with straight steel bars but takes advantage of a spiral pattern of the blades with the following features:

- during running in hole, the centralizer can rotate and function as a bearing and reduce the torque.
- Can be installed between two stop collars, or a stop collar and coupling
- Centralizers are manufactured with a positive O.D. of no less than 1/4" under hole size
- Customer should specify the casing, hole and restriction sizes when issuing the Purchase Order.

#### Slip-On, Spiral Blade, Left Hand Rotating Liner Centralizer



#### Technical Data Sheet

Casing Sizes:	2-7/8" to 24"
Collar Material:	A569 / A1011
Bar Material:	A36

### v. Short, Slip-On, Solid Body Centralizer with Straight Blades:

These centralizers are used where casing centralization is the main consideration, such as to centralize large casing strings to facilitate the cutting of casing during well abandonment.

#### Short, Slip-On, Solid Body Centralizer with Straight Blades

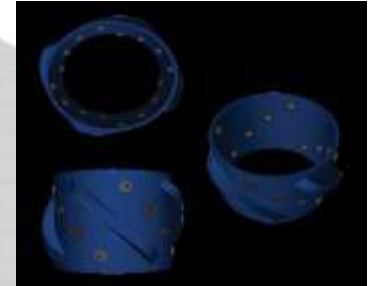




## vi. Short, Slip-On, Solid Body Centralizer with Spiral Blades:

This centralizer is the spiral blade version of the slip-on, rigid centralizer in a 4-1/2" length. The uniquely designed spiral blade with its 25-degree angle produces maximum fluid swirl and debris removal from horizontal, deviated or straight Holes.

## Short, Slip-On, Solid Body Centralizer with Spiral Blades



## vii. Long, Slip-On, Solid Body Centralizer with Straight Blades:

It is measuring 7-1/2" in length, this centralizer is the longer version of the above centralizer. It features straight blades for optimal centralization.

## Long, Slip-On, Solid Body Centralizer With Straight Blades



## viii. Long, Slip-On, Solid Body Centralizer with Spiral Blades:

This centralizes the casing for an even cement sheath. It also helps prevent differential sticking, reduces frictional drag and provides passage for fluids during displacement. The spiral blades break up gel pockets, reducing viscosity and improving displacement of drilling fluids during cementing.

## Long, Slip-On, Solid Body Centralizer with Spiral Blades



## ix. Slip-On, Solid Body, Liner Band Centralizer:

This slip-on centralizer reduces friction when running casing due to smooth profiles of flutes that are embossed on a solid 5" body. The design is recommended for running between two stop collars to allow the centralizer to function as a bearing, as well as to reduce torque. It can be manufactured to the customer specification upon receipt of purchase order Specify casing, hole and restriction sizes when ordering

## Slip-On, Solid Body, Liner Band Centralizer



### Technical Data Sheet

Casing Sizes	4-1/2" - 9-5/8"
Collar Material	A565 / A1011
Maximum Flute Height	1/2"



## **F. Welded, Standard Bow Spring Centralizer:**

SURF WORLDWIDE can supply several styles of both slip-on and hinged, welded, standard bow centralizers. These centralizers are easily installed over stop collars or couplings on all standard casing grades and provide casing centralization in the wellbore for vertical and horizontal wells. They also help reduce the effects of channeling by improving the cement flow, which results in a more uniform thickness between the casing and wellbore with the following features:

- Used in most type of well designs
- Centralizers are designed and tested for specified casing and hole size combinations. Any attempt to run through smaller restriction may cause excessive starting force and/or damage.

### **i. Hinged, Welded, Standard Bow Spring Centralizer:**

This Centralizer can be quickly installed over a stop collar or coupling thanks to its hinge-pin design. It also features straight bow springs that are welded onto the hinged end collars.

### **ii. Hinged, Welded, Standard Bow Spring Centralizer with Set Screws:**

This centralizer provides the holding force of the 500 Series by adding evenly spaced integral set screws to assist the welded straight bow springs. A stop collar or coupling is not required with this centralizer.

### **iii. Hinged, Welded, Standard Bow Spring Centralizer with Turbo Fins:**

This type of Centralizes the casing via straight bow springs with turbo fins that are welded onto the bow springs. The fins induce a spiral flow pattern to cement slurry and help reduce channelling during cementing operations.

## **Hinged, Welded, Standard Bow Spring Centralizer**



## **Hinged, Welded, Standard Bow Spring Centralizer with Set Screws**



## **Hinged, Welded, Standard Bow Spring Centralizer with Turbo Fins**



#### iv. Hinged, Welded, Standard Bow Spring Centralizer with Turbo Fins and Set Screws:

This type of Centralizer combines the enhanced holding force with the slurry cementing and channeling reducing capabilities. The hinged design ensures a simple installation process, usually over a stop collar or coupling with the following features:

- Hinged design with a smooth continuous bow profile,
- Set screws recommended to be used on casing grades of P110 or below,
- Installed by evenly tightening set screws in a “star pattern” to prevent collar deformation, then torque set screws in the leading end collar to a maximum of 25ft. -lbs.
- Special casing and hole size configurations are available upon request as it can be manufactured to the customer specification upon receipt of purchase order Specify casing, hole and restriction sizes when ordering,

##### Technical Data Sheet

Casing Sizes:	2-3/8” to 30”
Collar Material:	A565 / A1011
Bow Spring Material:	AISI 4130

#### v. Slip-On, Welded, Standard Bow Centralizer:

This type of Centralizer consists of two slip-on, three-inch-long creased steel collars with straight bow springs that are welded onto the outside of the slip-on end collars. These centralizers are normally run between two stop collars or over one slip-on stop collar to provide the casing/liner a smooth bearing surface.

#### vi. Slip-On, Welded, Standard Bow Centralizer with Set Screws:

This type of Centralizer ups the holding power of the 510 by including evenly spaced integral set screws, thereby eliminating the need for stop collars. It is also a slip-on style centralizer with the following features:

- Slip-on design with a smooth continuous bow profile,
- Slip-on end collars have enhanced mechanical integrity,
- Set screws recommended to be used on casing grades of P110 or below,
- Installed by evenly tightening set screws in a “star pattern” to prevent collar deformation, then torque set screws in the leading end collar to a maximum of 25ft. -lbs., or install centralizer between two stop collars,
- Special casing and hole size configurations are available upon request as it can be manufactured to the customer specification upon receipt of purchase order Specify casing, hole and restriction sizes when ordering,

##### Technical Data Sheet

Casing Sizes:	2-3/8” to 30”
Collar Material:	A565 / A1011
Bow Spring Material:	AISI 4130

#### Hinged, Welded, Standard Bow Spring Centralizer with Turbo Fins and Set Screws



#### Slip-On, Welded, Standard Bow Centralizer



#### Slip-On, Welded, Standard Bow Centralizer with Set Screws





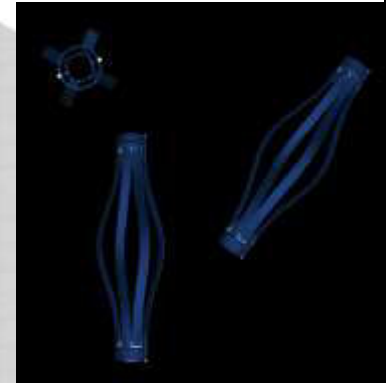
## vii. Hinged, Welded, Extended Bow Spring Centralizer:

This type of Centralizer consists of 30"-long, extended straight bow springs that are welded onto the hinged end collars. The extended bow springs allow for greater flexing of the bows to pass through various hole sizes.

## viii. Hinged, Welded, Extended Bow, Gravel Packer Bow Spring Centralizer:

This type of Centralizer provides centralization in open hole gravel packs. Its straight bow springs measure 40 inches, an extended length that enables them to flex significantly to pass through a wide range of hole sizes. This centralizer is used for under reamed holes, includes gravel packing operations.

## Hinged, Welded, Extended Bow Spring Centralizer

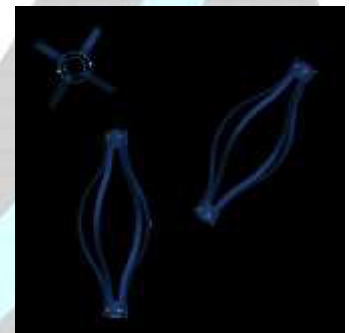


## ix. Hinged, Welded, Stab-In Bow Spring Centralizer:

This type of Centralizer is manufactured with 40"-long, extended straight bow springs welded onto the hinged end collars, and it can be used in a variety of restrictive situations. It is used to centralize casing and/or drill pipe during stab-in cementing operations. This centralizer can be used in under reamed holes with the following features:

- Used in most types of well designs,
- Hinged design with long smooth pronounced bow profile
- Hinged design allows for easy installation around casing coupling or stop collar,
- Centralizers are designed and tested for specific casing and hole size combinations,
- Special casing and hole size configurations are available upon request as it can be manufactured to the customer specification upon receipt of purchase order Specify casing, hole and restriction sizes when ordering,

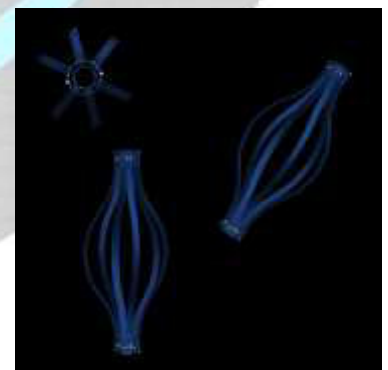
## Hinged, Welded, Stab-In Bow Spring Centralizer



Technical Data Sheet

Casing Sizes:	2-3/8" to 30"
Collar Material:	A565 / A1011
Bow Spring Material:	AISI 4130

## Hinged, Welded, Stab-In Bow Spring Centralizer



## **G. Slip-On, Welded, Close Tolerance Centralizer:**

This Centralizers can be used in drilling project in a tight spot. The Slip-On Welded Close Tolerance Centralizers are specifically designed for close tolerance casing applications when restrictions are present. Their design provides a practical solution for sufficient restoring forces after passing through those restrictions, while keeping the starting and running forces at a minimum with the following features:

- Used in close tolerance well applications,
- Recommended where tight restrictions are encountered,
- Slip-on design with a smooth continuous bow profile,
- Bows are inserted into the collar to allow minimum positive O.D,
- Slip-on end collars have enhanced mechanical integrity.

### **i. Slip-On, Welded, Close Tolerance Bow Spring:**

This Centralizer consists of two slip-on, three-inch-long notched steel collars with straight bow springs that are welded to the end collars. These centralizers are normally run between two stop collars to provide the casing/liner a smooth bearing surface.

### **ii. Slip-On, Welded, Close Tolerance Centralizer with Set Screws:**

This centralizer features an end collar with evenly spaced integral set screws that allow the centralizer to be pulled into the hole; a stop collar is not required. It is recommended for use on casing grades of P-110 and lower. This centralizer can be used in under reamed holes with the following features:

- Centralizers are designed and tested for specified casing and hole size combinations. Any attempt to run through smaller restrictions may cause excessive starting force and/or damage.
- Set screws recommended to be used on casing grades of P110 or below
- Install by evenly tightening set screws in a “star pattern” to prevent collar deformation, then torque set screws in the leading end collar to a maximum of 25ft. -lbs., or install centralizer between two stop collars
- It is manufactured to the customer specifications upon receipt of purchase order however, specify the casing and hole restriction sizes when ordering. 1/4” under hole size (Specify casing, hole and restriction sizes when ordering)

Technical Data Sheet

Casing Sizes:	3-1/2” to 16”
Collar Material:	A36
Bow Spring Material:	AISI 4130

## **H. laser cut, heat-treated one-piece centralizer:**

This Centralizers can be used in all drilling projects a high restoring force. The metallurgic process strengthens the centralizer integrity interact under all well conditions. The centralizer is manufactured to gauge hole size for easy running requiring minimum force and can be run in all hole types.

## **Slip-On, Welded, Close Tolerance Bow Spring**



## **Slip-On, Welded, Close Tolerance Centralizer with Set Screws**



## **laser cut, heat-treated one-piece centralizer**





## **2. Wipers:**

SURF WORLDWIDE can supply a hinged, reciprocating wall wipers along with its rotating cable wall wipers, which used to clean the wellbore while the casing is reciprocated or rotated. The wipers will remove the excess in the filter cake, mud and drilling cuttings off the wellbore, and will also reinforce the cement bonds.

## **3. Cement Baskets**

SURF WORLDWIDE can supply cement baskets and accessories in different styles both slip-on and hinged configurations. They are Flexible enough to be run with casing and/or liners and rigid enough to protect the weak formations from the higher hydrostatic pressure, it is designed to support the upper cement column during the cementing operations with the following features:

- Applicable both cased hole and open hole,
- help in cement de-hydration to reduce the hydrostatic fluid column above weak /losses formation.
- Grab the particles to form a dam in the annulus to prevent cement from falling back

## **4. Reamer Shoes:**

SURF WORLDWIDE can also supply reamer shoe compatible with all casing and liner hanger assemblies & Connections upon including all types of Premium formats, the reamer shoe provides a highly effective protection against the unexpected or anticipated problems during casing/liner running in hole. It is designed to handle the wellbore restrictions and other conditions such as swelling shale, ledges and washed-out pockets.

The Reamer Shoe has coarse carbide coated spiral blades which protects the well from surging during running and allows rapid cutting at optimum flow area.

The Reamer Shoe can be manufactured fitted with standard valve as well as HPHT valve which can tolerate up to 10,000 psi and operating temperatures up to 400° F.

### **Reamer Shoe:**



## 5. Swellable Packers

SURF WORLDWIDE can supply Swellable Packer with special design to reduce the swelling time into half of normal time. The Swellable Packer product can deliver a tailored deployment times, higher swelling volumes, exotic brine compatibility, as well as oil/ water/combination elements with the following features:

- Can be used in water and/or oil with hybrid reactive rubber compounds.
- Elastomer is bonded to the mandrel and reacts quickly when landed on depth with lengths up to 30 feet,
- The Approximate pressure rating is 1,200 psi per every 1 foot of elastomer
- Available in API mandrel sizes and grades and the Weight/threads are fully compatible with liner/casing
- Can be manufactured with customized rubber diameters for specific applications
- Temperature range of 100° F to 360° F (dependent on type of rubber compound).

**The Swellable Packer can be used in the following applications:**

- Multi-stage fracturing
- Multi-lateral isolation
- Well construction
- Aquifer protection
- Micro-annulus control
- Primary isolation
- Solid expandable tubulars
- Completions
- screen/expandable screen isolation
- Reservoir compartmentalization
- Acid stimulation
- Slotted/perforated liners
- Inflatable/mechanical packer back-up.

### Swellable Packers





## A. Multi-layer Composite Centralizer (MCC):

SURF WORLDWIDE can supply this Centralizers which combines industry-leading durability with superior performance in a structural centralizer that is easily installed anywhere. The composite materials are resistant to the high temperature, shear, impact, compression and surface abrasion, making it one of the most casing-friendly centralizers in the industry. It has very low friction factor and high wear resistance which make it mandatory tool for the wellbore applications due to the following features:

- Flexible Design with Simple Application,
- Installation is very Quick and Can be done Anywhere,
- Incredible Stand-Off.

### - The MCC has the following properties:

- Adhesion is higher than 6,000 psi,
- Temperature resistance is higher than 370°F,
- Compressive strength is higher than 40,000 psi,
- Tensile strength is higher than 35,000 psi,
- Impact resistance 33 feet 2 lb. drop ball, no damage.

### - The MCC has the following advantages:

- Very low coefficient of friction,
- High wear resistance however it is casing friendly
- Flexibility of design allows the optimal solution in each application,
- Low impact geometry for the restrictions and/or obstructions,
- Very robust construction as it has high mechanical properties,
- Staggered placement is recommended to give an optimal fluid bypass.

### - The MCC are valid in the following applications:

- in Wells of Lean profile and/or close tolerance,
- in High Pressure High Temperature (HPHT) wells,
- In the Side-tracks, Highly deviated and multilaterals
- Extended Reach Drilling (ERD) wells which are directional drilling of very long horizontal wells.
- with Expandable Casing
- Perforated and/or slotted liner
- Mechanical Restrictions, ECD issues and Differential sticking issues.

## Multi-layer Composite Centralizer (MCC)

### Straight Blade Centralizer



### Helical Blade Centralizer



## **B. Quick-lock Stop Collar:**

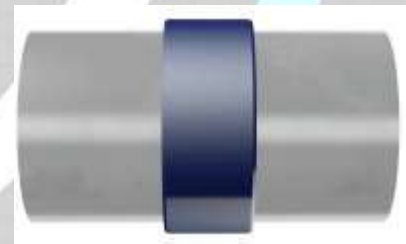
SURF WORLDWIDE can supply this Quick-Lock Stop Collar which is quick and simple in installation with high performance and it can be utilized with any Centralizer. The stop collar provides a high holding force, up to 150,000 lbs. Simple process to activate the quick-lock ring, slide the stop device on to the casing with the centralizer and remove the shipping screws once the desired location of the stop is reached. The Quick Lock Stop Collar has the following features:

- Locking mechanism remains fully contained under any condition,
- Fully Installed by the simple removal of the shifting screws,
- Non-welded carbon steel alloy construction,
- Higher performance.

The Quick Lock Stop Collar has the following features benefits:

- Easy & Quick to install which saves the time & expense,
- No special setting tools required,
- Safety in Use as it eliminates the hand safety hazard during installation,
- the locking mechanism assures functionality all time.

## **Quick-lock Stop Collar**





## 1. Casing Packers:

SURF WORLDWIDE can supply the following types of casing packers to the oil & gas industry for various applications:

### Inflatable Casing Packers (ICP)

#### **A. Inflatable Casing Packers (ICP):**

SURF WORLDWIDE can supply this type of the Inflatable Casing Packers (ICP) which are very reliable efficient solution for the zonal isolation over the entire life of the well.

The ICP is installed to seal between the casing/wellbore annulus or casing/casing annulus with high performance isolation in critical oil, gas, and geothermal applications, including the following applications:

- Perfect Isolation in the cemented wellbores,
- Assurance of Zonal isolation in the open-hole completions,
- Selective reservoir stimulation Operations,
- Perfect Isolation of oil, gas, and water zones,
- Isolation or Abandonment for Regulatory compliance,
- Ensure cement competency in conventional and staged cementing operations,

The Inflatable Casing Packers (ICP) are well recommended for the following features.

#### **- High Performance:**

The ICP tools are designed and manufactured to the latest technology and the highest industry standards with features that ensure the efficiency and performance in each application that benefits from:

- The Discontinuous ribbed elements of the 10 & 20 ft lengths that facilitate the optimum job evaluation as well as conformation in washed-out boreholes,
- The Application-specific elastomers which optimizes the performance in the extreme temperatures i.e. up to 350°F and various wellbore chemical environments including the CO<sub>2</sub>, H<sub>2</sub>S.
- Advanced valve system with lock out inflation control valve which assures the proper inflation of the ICP as well as the closing for the life-of-well zonal isolation,
- Inflation ability with mud, water or cement environments,

#### **- Optimum Isolation & Solutions:**

The versatility of the ICP tools is the key to optimize the isolation as the Tools in standard and customized configurations can always provide innovative solutions to the challenges for the following options:

- Standard ICP tools are produced in 4, 10 and 20 ft lengths,
- The Continuous 4ft and discontinuous 10 and 20ft elements,
- Standard and special element Outside Diameter,
- Standard and high temperature elements



## **B. Inflatable Production and Service Packers (IPP/ISP):**

SURF WORLDWIDE can supply this type of the Inflatable Production and Services Packers (IPP/ISP) which are used to provide the required zonal isolation in the work string/casing annulus or the tubing/wellbore annulus. In addition, selective isolation across multiple zones can be achieved via the configurations of Straddle packing. The IPP/ISP products are reliable, efficient tools for zonal isolation in critical oil, gas, and geothermal applications as a temporary solution or a permanent installation as follows:

- Production and/or Injection Isolation,
- If there is a casing restriction which prevents the use of mechanical set packers and bridge plugs,
- Hydraulic fracturing, reservoir stimulation and acid treatments,
- Cementing Op's,
- Water shut off,
- Screen installation,
- Workover, Well Intervention and Abandonment,
- Formation Tests and Evaluation,
- Casing Tests & leak detection,

The Inflatable Production & Service Packers (IPP/ISP) are well recommended for the following features.

### **- High Performance Isolation:**

The IPP/ISP tools are designed and manufactured to the latest technology and the highest industry standards to ensure an effective pressure seal and efficient operations with the following features:

- Single and/or multiple sets,
- Pull and/or rotational release
- Ball, plug, or dart activation process
- Inflation with water, mud, or cement

### **- Built-In Performance**

The IPP/ISP tools have a built-in performance that ensures the high efficiency during the applications benefit from:

- Steel cable reinforced inflatable elements for multi-set applications,
- Exposed rib element option for increased anchoring in casing installations,
- Application specific elastomers that optimize performance in temperature extremes up to 350°F and chemical environments,

### **- Optimum Isolation & Solutions:**

The versatility of the IPP/ISP tools is the key to optimize the isolation as the Tools in standard and customized configurations can always provide innovative solutions to the challenges for the following options:

- Full cover and exposed rib elements,
- Standard sizes and special clearance elements outside diameter (OD),
- Standard and high temperature elements up to 350°F,
- Run on Tubing and/or drill pipe,

## **Inflatable Production and Service Packers (IPP/ISP):**





## C. Inflatable Isolation and Stage Cementing Packer (ISCP):

SURF WORLDWIDE can supply this type of Inflatable Isolation and Stage Cementing Packers (ISCP) are used to perform more reliable operation and achieve better cement placement at reduced risk and remedial costs during the running and cementing of the well casing. The ISCP has special engineering design with features that improves the cement slurry placement with a single tool which combines an inflatable packer for zonal isolation along with a stage-cementing tool. The cementing Over-displacement is eliminated when landing the first stage cementing plug to inflate the ISCP rubber element. Then, a separate free-fall plug ensures the plug is landed without displacing mud into the shoe track and compromising the isolation integrity with a wet shoe. The ISCP Tool also has an internal sleeve design that eliminates the premature inflation when washing down the casing to reach the well total depth (TD).

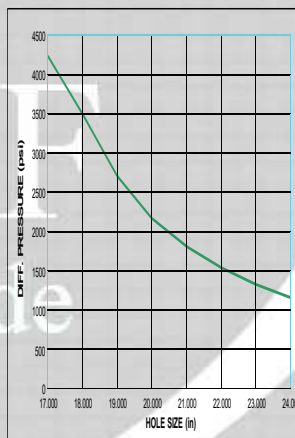
The ISCP are recommended for the following:

- avoid displacement uncertainty of cement slurry,
- prevent premature inflation of the packers,
- optimal isolation solutions which are achievable by the following options:
- Four pressure-control settings on the stage tool to prevent over-pressuring and rupturing the element when inflating with cement, mud, or water,
- Integral tool places the inflatable element and cementing ports closer which improves the cement coverage compared to the conventional two-tool assembly.
- The ISCP tool is tested to the full casing burst and collapse ratings.
- Drill-out integrity shall be ensured by using one-piece mandrel for heavier casing weights and a two-piece mandrel for lighter casing weights.
- The ISCP Tool is available for 9-5/8" and 13-3/8" casing with standard 11-1/4" and 15-1/4" tool OD respectively. Special/Custom OD tools are also available upon Customer's request which shall be specified in the Purchase Order.
- The ISCP Options include a 4 ft long continuous ribbed element for the inside casing or gauged wellbores, and a 10 ft discontinuous ribbed element for the washed-out or abnormal open hole caliper.

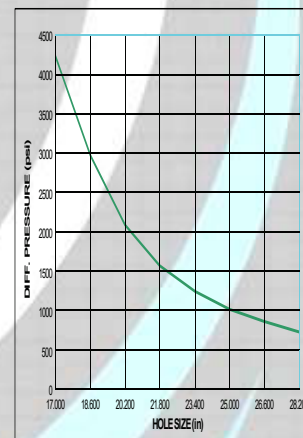
## Inflatable Isolation and Stage Cementing Packer (ISCP):



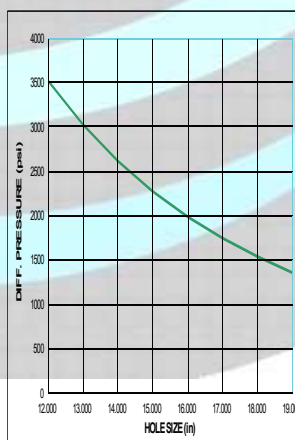
### Pressure Curves



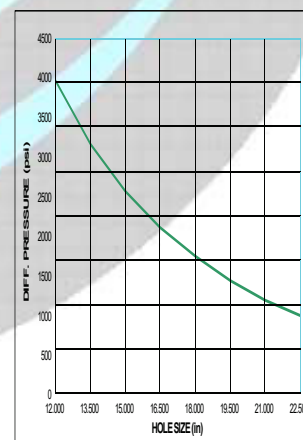
Pressure Curve for 13.38, 4ft element



Pressure Curve for 13.38, 10ft element



Pressure Curve for 9.63, 4ft element



Pressure Curve for 9.63, 4ft element

## 2. Casing Float Equipment:

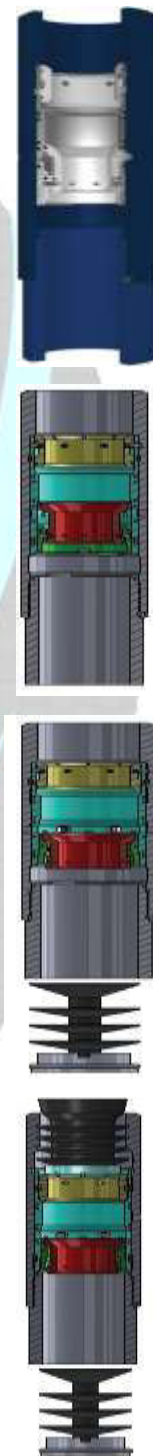
SURF WORLDWIDE can supply the following types of casing float equipment & accessories to the oil & gas industry for various applications:

### A. Hydraulic Stage Cementing Collar (HSC):

SURF WORLDWIDE can supply this type of the Hydraulic Stage Collar allows for casing cementing in multiple stages at any inclination/deviation with a hydraulically opened sleeve system. The HSC tool design ensures the optimal performance in all conditions and applications where a low cement displacement pressure is required for weak formations.

- The Tool has the following features:
  - Setting annulus casing packers in conjunction with the hydraulic stage collars,
  - Hydraulic Stage collar can be opened immediately after the first stage shut-off plug is landed,
  - The Minimal moving parts reduces the chances of tool failure,
  - Reduces the risk of first stage cement setting above the tool before opening,
  - Large pump through diameters allows the wiper plugs and drop balls to pass through without affecting the tool function.
  - The setting of opening pressure is adjustable,
  - High burst and collapse pressures after closing the tool,
  - The dual snap ring locking mechanism ensures the tool does not open after closure and is able to withstand 100,000 lb. minimum upward force,
  - Well protected components ensure the tool can withstand the drill out without damage or leakage,
  - Multiple high-pressure seals around the ports after closure ensures no pressure drop,
  - Standard stage collar materials are suitable for sour service applications
  - Suitable for operating at temperatures up to 300°F.
  - All internal components within the casing drift can be drilled by PDC and/or Tri-cone bit,
- The Tool has the following options:
  - Three stage configuration,
  - High temperature rating up to 400°F
  - Additional optional opening cone can be used to open stage collar, if required.
  - The Tool Threads (Box and Pin) are same as the casing threads (API & Premium) and the Opening seat and inner sleeve seals provide pressure integrity across the circulation ports.
  - After the 1st stage shut off plug has landed, apply surface pressure from to shear the hydraulic opening sleeve screws. The hydraulic opening sleeve shifts down, landing on the anti-rotation taper angles and exposes the circulation ports.
  - After the closing plug has landed, the surface pressure shears the closing seat screws. The closing seat lands on anti-rotation taper angles, allowing the lugs to cam into the grooves in the closing seat. The inner sleeve then shifts down engaging dual high-pressure seals above and below the body ports to provide pressure integrity.
  - Dual snap-rings engage to ensure the inner sleeve remains retained in the closed position. Anti-rotation tabs prevent rotation of the inner sleeve during drill-out.

### Hydraulic Stage Cementing Collar (HSC)



## **B. Mechanical Stage Cementing Collar (MSC):**

SURF WORLDWIDE can supply this type of Mechanical Stage Collar (MSC) which gives the flexibility for casing cement casing in two or three stages with a Mechanically opened sleeve system. The MSC Tool design ensures the performance in the long casing strings applications where a low cement displacement pressure is required for weak formations.

- The MSC Tool has the following features:
  - Large pump through diameters allows the wiper plugs and drop balls to pass through without affecting the tool function/ongoing operation.
  - Anti-rotation mechanical system for the inner-sleeve does not require any holes through the MSC tool body, and the unique anti-rotation system for the drillable seats enhances the drill-out with PDC and tri-cone bits,
  - One inner-sleeve design eliminates any pressure trap which increases reliability of the MSC tool,
  - The box threads are integrated into the body of the stage tool,
  - The Short close tolerance seal length allows the operations in wells with high dog leg severity (DLS) up to 12° per 100 ft,
  - The large density and length of the integral opening cone assures the quick action, even in the high weight mud,
  - The MSC is available in three stage configuration,
  - The seals can accommodate/suitable for high temperatures above 300°F,
  - The Pump-down opening plug systems can be used in the highly deviated wells,
  - The Shut-off plug systems are available for setting casing packers and testing casing at high pressures,
  - All internal components within the casing drift can be drilled by PDC and/or Tri-cone bit,
- The Tool has the following options:
  - The Tool Threads (Box and Pin) are same as the casing threads (API & Premium) and the Opening seat and inner sleeve seals provide pressure integrity across the circulation ports.
  - After the opening cone has landed, apply surface pressure from to shear the hydraulic opening sleeve screws. The opening sleeve shifts down, landing on the anti-rotation taper angles and exposes the circulation ports.
  - After the closing plug has landed, the surface pressure shears the closing seat screws. The closing seat lands on anti-rotation taper angles, allowing the lugs to cam into the grooves in the closing seat. The inner sleeve then shifts down engaging dual high-pressure seals above and below the body ports to provide pressure integrity.
  - Dual snap-rings engage to ensure the inner sleeve remains retained in the closed position. Anti-rotation tabs prevent rotation of the inner sleeve during drill-out.

## **Mechanical Stage Cementing Collar (MSC):**





## **C. Standard Float Shoe & Float Collar:**

SURF WORLDWIDE can supply all Standard types of Float Shoe & Float Collars equipment to suit the oil, gas, and geothermal applications which can accommodate various ranges flow rates from 10 bpm up to 20 bpm.

The Standard Types are as follows:

### **1. Float Shoe:**

Float Shoes feature plunger valves ensures the casing can be floated to bottom and the U-tube is prevented after cement displacement. The valve assembly is made from high temperature, high strength phenolic which is anchored to the float shoe body with a high strength cement that enables the drill-out easily and quickly.

### **2. Float Collar:**

The Float Collar are used to bump the cement wiper plugs and provide additional barrier against the U-tube, allowing for contaminated cement to be trapped within the casing shoe track. The Float Collars utilize the plunger valves that are tested according to API RP10F.

- The Standard Float Equipment have the following features:

- The Large flow area assures minimal erosion of the valve from abrasion drilling fluids at high flow rates,
- The Valve assembly made from high temperature, high strength phenolic material which protects against erosion,
- The Resilient Hydrogenated Nitrile Butadiene Rubber (HNBR) seal ensures the proper sealing through all pressures, including low differential pressure areas,
- The Optimized spring force allows dart to seat on protective retainer cup while flowing, which protects the spring from erosion, and ensures sealing even in low pressure in horizontal well applications,
- The Round nose on float shoe assists in guiding the casing to target Depth,
- All items are PDC and Tri-cone Bit drillable.

- The Standard Float Equipment have the following properties:

- Non-rotating - a plate is cemented in the float equipment and used with compatible wiper plugs to prevent the rotation and enable faster drilling out,
- The Float shoes can be provided with ports (up, down or side), and various types of noses as required to suit various/different applications,
- The Orifice - fill grooves in dart for tieback applications,
- It can be Pre-set as auto-fill,
- Single or dual valve configurations are available,
- API & Premium grades as well as connections are available.

## **Standard Float Shoe & Float Collar:**



## **D. High Pressure High Temperature (HPHT) Float Shoe & Float Collar:**

SURF WORLDWIDE can also supply the HPHT types of Float Shoe & Float Collars equipment which are constructed to suit the extreme well conditions such as hydraulic fracturing or casing strings with high annular pressures.

The HPHT Types are as follows:

### **1. HPHT Float Shoe:**

The HPHT Float Shoes has a cast-iron plunger valve which is capable of withstanding extreme well conditions; pressures up to 10,000 psi in hydraulic fracturing. In addition, the plunger ensures a positive seal as erosion-resistant for more than 24 hours of circulation at 10 bpm.

### **2. HPHT Float Collar:**

The HPHT Float Collar made for the casing strings which requires special conditions. It has an integrated latch-in profile capable of withstanding up to 10,000 psi bump pressure.

- The HPHT Float Collar Equipment have the following features:
  - Eccentric nose profile to guide casing through ledges,
  - Applications with high annular pressure and/or play bump pressure,
  - Sealing elements around valve housing ensures there are no leak,
  - All items are PDC and Tri-cone Bit drillable.
- The HPHT Float Equipment have the following properties:
  - Top and bottom latch-in plugs are supplied separately,
  - The Float shoes can be provided with ports (up, down or side), and various types of noses as required to suit various/different applications,
  - Single or dual valve configurations are available,
  - API & Premium grades as well as connections are available.

## **HPHT Float Shoe & Float Collar:**



### **Valve Technical Data**

Casing Sizes:	4 1/2" - 5 1/2"
Minimum Flow Area:	4.40 in <sup>2</sup>
Tested Flow Durability:	24 hrs
Tested Flow Rate:	10 bpm
Valve Back Pressure Rating:	10,000 psi
Temperature Rating:	400°F
Plunger Material:	Cast Iron
Valve Housing Material:	6061 Aluminum

## **E. Inner - String Cementing Equipment; Stab-in & Stab-in Float Shoe & Float Collar:**

SURF WORLDWIDE can also supply the Stab-in Float Shoe & Stab-in Float Collars equipment which are constructed for optimum inner-string cementing operations as follows:

### **3. Stab-in Float Shoe:**

The Stab-in Float Shoes are fitted with a round nose which assists guiding the casing to the target depth. They can also be provided with ports (up, down or side) and various types of noses to suit various/different applications.

### **4. Stab-in Float Collar:**

The Stab-in Float Collar are fitted with a valve assembly suitable for high temperature and high strength. The Stab-In Collars has a features of a balanced spring force which makes the sealing occurs during the low differential pressures. In addition, it is ideal for large diameter casing, where cement can be pumped through the drill pipe or tubing, reducing cement displacement time and volume pumped.

- The Stab-in Float Collar Equipment have the following features:
- Offshore well cementing where pumping through tubing is preferred
- The Stinger includes 4 O-rings providing a positive seal once stabbed into receptacle.
- All items are PDC and Tri-cone Bit drillable,
- Single or dual valve configuration,
- Pre-set as autofill,
- Premium grades and premium connections,
- Latch-In dart to be ordered separately,
- Stab-In/ Latch-In Receptacle.

### **• Valve-1 Specifications:**

Valve Size: 2.5"  
Plunger Type: Phenolic  
API Rating: RP10F, Category IIIC  
Tested Flow Rate: 10 BPM  
Tested Flow Durability: 24 Hours  
Temperature Rating: 400°F  
Valve Back Pressure Rating: 5000 psi  
Inlet ID: 1-7/8"  
Minimum Flow Area: 2-3/4"

### **• Valve-2 Specifications:**

Valve Size: 3.5"  
Plunger Type: Phenolic  
API Rating: RP10F, Category IIIC  
Tested Flow Rate: 10 BPM  
Tested Flow Durability: 24 Hours  
Temperature Rating: 400°F  
Valve Back Pressure Rating: 5000 psi  
Inlet ID: 2-2/3"  
Minimum Flow Area: 5-1/2"  
Flow rate: up to 20 BPM.

## **Stab-In Float Shoe & Stab-In Float Collar:**





### **3. Drilling Fluids, Stimulation, Cementing & Production Chemicals & Materials:**

SURF WORLDWIDE can supply the following various drilling fluids, Stimulation & Production Chemicals to the oil & gas industry for various applications:

#### **I. Drilling Mud/Fluid Products:**

##### **A. Commercial Products**

- 1 Barite (API Grade), 1.5 MT/J.Bag
- 2 Calcium Chloride 94-97% (Dry), 1.0 MT/J.Bag
- 3 Marble grade Calcium Carbonate Fine (5 - 50 micron PSD range, provide D10-D50-D90), 1.0 MT/J.Bag
- 4 Marble grade Calcium Carbonate Medium (100 - 250 micron PSD range, provide D10-D50-D90), 1.0 MT/J.Bag
- 5 Hydrated Lime, 25 kg/sk
- 6 Industrial Salt, 1.0 MT/J.Bag
- 7 Sodium Bicarbonate, 25 kg/sk
- 8 Sodium Carbonate (Soda Ash), 50 kg/sk
- 9 Sodium Hydroxide (Pearl Type Caustic Soda), 25 kg/Steel Drum
- 10 Sodium Acid Pyrophosphate (SAPP), 25 kg/sk
- 11 Sodium Silicate, 55 gal/drum
- 12 Sized Salt Bridging Agent (Fine), 1.0 MT/J.Bag
- 13 Sized Salt Bridging Agent (Medium), 1.0 MT/J.Bag
- 14 Sized Barite (for weighted Sweeps), 1.0 MT/J.Bag
- 15 Potassium Chloride 98% (KCl), 1.0 MT/J.Bag
- 16 Potassium Hydroxide (Free Flowing White Crystal Pearls), 25 kg/Steel drum
- 17 Liquid Casing equivalent (Coarse), 25 kg/sk
- 18 Liquid Casing equivalent (Fine), 25 kg/sk
- 19 Rapeseed Oil (Lubricant), 55 gal/drum
- 20 Rig Wash (Degreaser), 55 gal/drum
- 21 Citric Acid, 25 kg/sk
- 22 ROP Enhancer, 55 gal/drum

##### **B. Viscosifiers & Filtration Control Products**

- 1 Bentonite - OCMA Grade, 1.0 MT/J.Bag
- 2 Bentonite - Wyoming, 25 kg/sk
- 3 Borax (cross-link polymer), 25 kg/sk
- 4 Dispersed Xanthan Gum, 25 kg/sk
- 5 Fiber Sweeps, 15 lb/pail
- 6 Guar Gum, 25 kg/sk
- 7 Mixed Metal Hydroxide, 25 kg/sk
- 8 Poly Anionic Cellulose, Regular Viscosity, 25 kg/sk
- 9 Poly Anionic Cellulose LV Grade Only, Low Viscosity, 25 kg/sk
- 10 Modified Potato Starch (Non Ferm. Pregelatinized - High Tolerance to Calcium - Stable Min at 230° F), 25 kg/sk
- Synthetic Polymer (Viscosifier for CaCl<sub>2</sub> Brine, BHT ≤ 300° F), 25 kg/sk

### Drilling Mud/Fluid Products, cont.:

#### **C. Shale Stabilizers Products**

- 1 Glycol (for HT & High Salinity System), 55 gal/drum
- 2 High molecular-weight Partially-Hydrolyzed Polyacrylate (PHPA) Shale Stabilizer, 5 gal/pail
- 3 Sulphonated Asphalt Shale Stabilizer (SOLTEX), 50 lb/sk
- 4 Polyamine for High Salinity System, compatible with monovalent and divalent brine, 55 gal/drum

#### **D. Lubricants, Defoamer, Emulsifiers and Surfactants Products**

- 1 Drilling Detergent, 55 gal/drum
- 2 Ester based Lubricant for High Salinity (Radiagreen EME Salt), 55 gal/drum
- 3 Ester based Lubricant for WBM (Radiagreen EBL), 55 gal/drum
- 4 Defoamer Based Silicone, 55 gal/drum
- 5 Pipe Freeing Agent (Weighted and unweighted / Environmental), 55 gal/drum
- 6 Polymer Beads (Fine), 50 lb/sk
- 7 Polymer Beads (Medium), 50 lb/sk
- 8 Polymer Thinner / Deflocculant (High Salinity & High Calcium WBM Polymer Systems, BHT  $\leq 250^{\circ}$  F - Not pH dependent), 5 gal/drum

#### **E. Workover, Completions, Packer Fluids and Corrosion Inhibitors Products**

- 1 Bactericide (Glutaraldehyde), 55 gal/drum
- 2 Corrosion Inhibitor (Amine Based for Water Based Drilling Fluids), 55 gal/drum
- 3 Corrosion Inhibitor for Monovalent Completion/Packer Fluids (Amine based, BHT  $\leq 300^{\circ}$  F), 55 gal/drum
- 4 Corrosion Inhibitor for Divalent Completion/Packer Fluids (Amine based, BHT  $\leq 300^{\circ}$  F), 55 gal/drum
- 5 Hydrogen Sulfide Scavenger (Triazine), 55 gal/drum
- 6 CO<sub>2</sub> Scavenger (Liquid), 55 gal/drum
- 7 Magnesium Oxide, 25 kg/sk
- 8 Oxygen Scavenger (Ammonium Bisulfate including Ferrous Iron, Cobalt or Nickel Catalyst), 55 gal/drum
- 9 Oxygen Scavenger (Granular Erythorbate), 25 kg/sk
- 10 Oxygen Scavenger (Sodium Sulfite including ferrous Iron, Cobalt or Nickel Catalyst) 25 kg/sk
- 11 Pure grade Hydroxyl Ethyl Cellulose (HEC), 25 kg/sk
- 12 PVD Salt, 1.0 MT/J.Bag
- 13 Scale Inhibitor (for Drilling & Completion Fluids), 25 kg/pail
- 14 Sodium Bromide 97% (Dry), 1.0 MT/J.Bag
- 15 Sodium Bromide 97% (Liq-12.5 ppg), IBC
- 16 Calcium Bromide 14.2 ppg, Liquid, IBC

#### **F. Loss of Circulations Materials**

- 1 Cellulose Fibrous Material (Fine), 25 lb/sk
- 2 Cellulose Fibrous Material (Medium), 25 lb/sk
- 3 Cellulose Fibrous Material (Coarse), 25 lb/sk
- 4 Marble Grade Calcium Carbonate Coarse (250 - 600 micron PSD range, D<sub>50</sub> = 600 micron), 1.0 MT/J.Bag
- 5 Marble Grade Calcium Carbonate, Extra Coarse (600 - 2300 micron PSD range, D<sub>50</sub> = 2300 micron), 1.0 MT/J.Bag
- 6 Magma Fiber (Fine), 25 lb/sk
- 7 Magma Fiber (Medium), 25 lb/sk

### Drilling Mud/Fluid Products, cont.:

- 8 Magma Fiber (Coarse), 30 lb/sk
- 9 Nut Shell (Fine), 25 kg/sk
- 10 Nut Shell (Medium), 25 kg/sk
- 11 Nut Shell (Coarse), 25 kg/sk
- 12 Resilient Graphitic Carbon (100-micron D50), 25 kg/sk
- 13 Resilient Graphitic Carbon (400-micron D50), 25 kg/sk
- 14 Resilient Graphitic Carbon (50-micron D50), 25 kg/sk
- 15 FLC 2000, 25 lb/sk
- 16 FLC Fine, 25 lb/sk
- 17 FLC Coarse, 25 lb/sk
- 18 FLC Extra Coarse, 25 lb/sk
- 19 LCM, Acid Soluble, for Fractured, Vugular, & Caverns Limestone (N SEAL), 25 kg/sk
- 20 Specialized blended mixture of granular, flakes and fibrous materials, Kwik Seal (Fine), 25 kg/sk
- 21 Specialized blended mixture of granular, flakes and fibrous materials, Kwik Seal (Medium), 25 kg/sk
- 22 Specialized blended mixture of granular, flakes and fibrous materials, Kwik Seal (Coarse), 25 kg/sk
- 23 Mica Fine, 25 lb/sk
- 24 Mica Coarse, 25 lb/sk
- 25 Mica Medium, 25 lb/sk
- 26 X-Linked Polymer Plug, 50 lb/sk
- 27 X-Linked Polymer Activator, 50 lb/sk
- 28 X-Linked Polymer Buffer, 50 lb/sk
- 29 X-Linked Polymer Acid Soluble, 50 lb/sk

### **G. Wellbore Cleanup Systems & Products**

- 1 Mud Cake Breaker (Acid In-Situ for RFD Polymer System with CaCO<sub>3</sub> for BHT ≤ 250° F), 55 gal/drum
- 2 Mud Cake Breaker (Brine Soluble Chelating Agent for BHT ≤ 250° F), 55 gal/drum
- 3 Mud Cake Breaker (Enzyme for RDF Polymer for BHT ≤ 250° F), 55 gal/drum
- 4 Mud Cake Breaker (Oxidizer for RDF Polymer System for BHT ≤ 250° F), 50 lb/sk

### **H. HTHP Products**

- 1 High Temperature Polymer Stabilizer, 5 gal/drum
- 2 High Temperature Synthetic Polymer Viscosifier (BHT > 300° F), 25 kg/sk
- 3 Potassium Formate (13.1 ppg Liquid, Inclusive Mob/Demob), 1.0 Cu.M IBC
- 4 Modified Potato Starch (Non Ferm. HT up to 300° F - Pregelatinized - High Tolerance to Calcium), 25 kg/sk
- 5 Sodium Formate 96-98% (Dry), 25 kg/sk

### **CONSUMABLES**

- 1 Waste Skips (Total 16 Units)
- 2 Filter Element (Nominal 25 Microns) - (Inclusive of Mob/Demob)
- 3 Filter Element (Absolute 10 Microns) - (Inclusive of Mob/Demob)
- 4 Filter Element (Absolute 5 Microns) - (Inclusive of Mob/Demob)
- 5 Filter Element (Absolute 2 Microns) - (Inclusive of Mob/Demob)
- 6 Corrosion Coupon (4-1/2" IF X 5" XH) - (Inclusive of Mob/ Demob & Analysis)
- 7 Corrosion Coupon (3-1/2" IF X 3-1/2" XH) - (Inclusive of Mob/ Demob & Analysis)



## II. Well Stimulation Chemicals/ Products:

Item	Product Description
1	Hydrochloric Acid 32%
2	Hydrochloric Acid 28%
3	Hydrochloric Acid 15%
4	Corrosion Inhibitor for range 100 to 250 F (HAI-OS equivalent)
5	Corrosion Inhibitor Aid > 250 F (HII-124F equivalent)
6	Non-Emulsifier Cationic (for acid) (19N equivalent)
7	Non-Emulsifier Non-Ionic (for acid) (LoSurf-259 equivalent)
8	Non-Emulsifier Non-Ionic (High Temp for) (LoSurf-259 equivalent)
9	Anti-Sludge Cationic (AS-5 equivalent)
10	Anti-Sludge Non-Ionic (for acid) (AS-7 equivalent)
11	Anti-Sludge Cationic (HT) (AS-5 equivalent)
12	Anti-Sludge Non-Ionic (HT ) (AS-7)
13	Iron Control Additive (Fe-1A)
14	Iron Control Additive High Temp (Fe-2)
15	Iron Control Additive (Alternate) (Fe-2)
16	Diverting Agent (Benzoic Acid Flakes) (TLC-80 equivalent)
17	Acid Gelling Agent (high temperature) (SGA-HT equivalent)
18	Acid Foaming Additive (HC-2 equivalent)
19	Water Foaming Additive (HC-2 equivalent)
20	Water Gelling Agent (HPG) (WG-11 equivalent)
21	Water Gelling Agent (HEC) (WG-17 equivalent)
22	Liquid Nitrogen
23	Fresh Water/Brine
24	Methanol
25	Mutual Solvent EGMBE (Musol equivalent)
26	Friction Reducer for Acid & Water SGA-HT equivalent)
27	Friction Reducer for Diesel (FR-5 equivalent)
28	Ball Sealers = 1.1 (Regular)
29	Ball Sealers = 1.1 (Water Soluble - "Bio Balls")
30	Biocide (for Seawater + HPG) (BE-6)
31	Non Emulsifier (for Sea Water) (19N)
32	Polymer Based System for Water Conformance (H2Zero equivalent)
33	Acetic Acid
34	Corrosion Inhibitor Aid (HII 500 M equivalent)

**Well Stimulation Chemicals/ Products, cont.:**

- 35 Visco-Elastic Diverter - Acid System (VES equivalent)
- 36 Corrosion Inhibitor Aid (HII 124B equivalent)
- 37 Emulsifier for Emulsified Acid (CEA equivalent )
- 38 Fluid Loss Control Agent for Self-Diverting Acid
- 39 H<sub>2</sub>S Scavenger (SCA 130)
- 40 Iron Control Agent for Self-Diverting Acid
- 41 Natural Fracture Acid Diverter - MaxCO<sub>3</sub>
- 42 Paraffin Solvent - Toluene
- 43 Potassium Chloride
- 44 Xylene (Paragon 100 E equivalent)
- 45 Bactericide (BE 6 equivalent)
- 46 Oxygen Scavenger
- 47 All pH - Control – 1, 2 & 3
- 48 Breaker - 1 (SP breaker equivalent)
- 49 Breaker - 2 ( ViconNF equivalent)
- 50 Breaker - 3 ( Fercheck equivalent )
- 51 Crosslinker - 1 (XL - 1 equivalent)
- 52 Crosslinker - 2 (XL-2 equivalent)
- 53 Micro Emulsion - Penetrating Agent
- 54 Anti-Foamer /Defoamer (D Air 4000L equivalent)
- 55 Surfactant
- 56 All Loss Circulation Materials with all sizes
- 57 Isopropyl Alcohol
- 58 Calcium Chloride
- 59 Ammonium Chloride
- 60 Clay Stabilizer (Clay Sta equivalent)
- 61 Wellbore Cleaning Solvent
- 62 Formation Cleaning Solution
- 63 Emulsifier Agent up to 210 deg F (AF 61 equivalent )
- 64 HT Emulsifier Agent up to 320 F ( AF 70 equivalent )
- 65 Anti Sludge Agent (AS- 9 equivalent)
- 66 HT Corrosion Inhibitor Intensifier (HII-500 M equivalent)
- 67 HT Corrosion Inhibitor Intensifier (HII-124B equivalent)
- 68 Iron Control Additive ( FerCheck equivalent)
- 69 Acid Diverter System ( Guidon AGS equivalent )
- 70 Relative Permeability Modifier (GasPerm1000 equivalent)
- 71 Asphaltic dissolver (Targon II equivalent)

**Well Stimulation Chemicals/ Products, cont.:**

- |    |   |
|----|---|
| 72 | Corrosion Inhibitor up to 300 deg F (HAI 85M equivalent)          |
| 73 | HT Diverting Agent degradable up 350 F ( BioVert equivalent )     |
| 74 | HT Rapid Set Fluid- Acid soluble up 300 F (Thermatek equivalent)  |
| 75 | Rapid gel fluid - up 300 deg F (K Max Plus equivalent)            |
| 76 | Polymer based water shut off Conformance (Crystalseal equivalent) |
| 77 | Halad 344 equivalent  |
| 78 | WG 17 equivalent  |
| 79 | HR 4 equivalent   |
| 80 | CFR 3 equivalent  |
| 81 | Microbond M equivalent  |
| 82 | SCR 100 equivalent  |
| 83 | Halad 344 EXP quivalent   |
| 84 | Microblock standard equivalent                                    |
| 85 | Halad 413 equivalent  |
| 86 | Tuned Spacer equivalent   |
| 87 | D-Air4000L equivalent   |
| 88 | Econolite.  |

SURF WORLDWIDE can supply all type of chemicals & products in powder or liquid as required and are being widely used in the industry for cementing programs.

The products have been tested in accordance with the latest applicable ISO and API standards in order to assure delivery of the required properties. The Products' Material Safety Data Sheet as well as detailed product specification sheet are also available



### **III. Cementing Chemicals, Materials & Products:**

#### **A Downhole Tools (Consumables)**

##### **a) Drill pipe wiper ball (sponge ball)**

##### **b) Cement Retainer**

- 1 24" EZSV equivalent
- 2 20" EZSV equivalent
- 3 18-5/8" EZSV equivalent
- 4 13-3/8" EZSV equivalent
- 5 10-3/4" EZSV equivalent
- 6 9-5/8" EZSV equivalent
- 7 7-5/8" EZSV equivalent
- 8 7" EZSV equivalent
- 9 5-1/2" EZSV equivalent
- 10 5" EZSV equivalent
- 11 4-1/2" EZSV equivalent

##### **c) Bridge Plug (PDC Drillable)**

- 1 24" EZSV equivalent
- 2 20" Bridge Plug equivalent
- 3 18-5/8" Bridge Plug equivalent
- 4 13-3/8" Bridge Plug equivalent
- 5 10-3/4" EZSV equivalent
- 6 9-5/8" Bridge Plug equivalent
- 7 7-5/8" Bridge Plug equivalent
- 8 7" Bridge Plug equivalent
- 9 5-1/2" Bridge Plug equivalent
- 10 5" Bridge Plug equivalent
- 11 4-1/2" Bridge Plug equivalent

#### **B. Cementing Chemicals (Consumables)**

##### **a) Fluid Loss Additives**

- 1 Fluid Loss control (Low Temperature) HALAD-22A equivalent
- 2 Fluid Loss control (Medium Temperature, Dispersing) HALAD-413 equivalent
- 3 Fluid Loss control (High Temperature) HALAD-344 equivalent

##### **b) Dispersant / Free Water Control**

- 1 Dispersant CFR-2L or CFR-3L equivalent
- 2 Dispersant CFR-2 or CFR-3 equivalent

##### **c) Free Water Control / Water Gelling Agents**

- 1 Powdered Free water control agents - (DuPont) Elvanol HV equivalent
- 2 Free water control - (Drilling Specialties) HE-400 or WG-17 (Halliburton)

### Cementing Chemicals, Materials & Products (Cont.):

#### **d) Retarders**

- 1 Low Temperature Retarder HR-4 equivalent: (Low Temperature).
- 2 Medium Temperature Retarder HR-5 equivalent: (Medium Temperature).
- 3 High Temperature range Retarder HR-15 equivalent (High Temperature).
- 4 High Temperature range Retarder Liquid HR-12 equivalent
- 5 High Temperature range Retarder Aid D-121 equivalent
- 6 High Temperature range Retarder Aid D-121 equivalent

#### **e) Gas Control Additives**

- 1 Gas Control Additives - Medium to High Temperature - GAS STOP / Halad 344 equivalent
- 2 Latex - Low Temperature Gas Control < 200 F - FloBlock 210 D equivalent
- 3 Latex LATEX-2000 equivalent
- 4 Latex stabilizer STABILIZER-434C equivalent
- 5 Latex stabilizer STABILIZER-434B equivalent

#### **f) Spacers**

- 1 Spacer Mixtures: Tuned Spacer or Diacel Adjustable Spacer (Drilling Specialties) equivalent
- 2 U066 – Mutual Solvent equivalent
- 3 D182 – Mudpush Spacer equivalent

#### **g) Accelerators**

- 1 Sodium silicate ECONOLITE L equivalent
- 2 Sodium meta silicate ECONOLITE equivalent
- 3 Calcium Sulfate Hemi-hydrate (plaster of Paris) - Cal-Seal equivalent
- 4 Calcium Chloride 94-97%

#### **h) Anti-Foam Additives**

- 1 anti-foam (Dow Chemical) Polyglycol P-4000 or D-Air-2 equivalent
- 2 anti-foam D-AIR-1 equivalent - Polyglycol P-4000 absorbed onto inert solid material
- 3 Silicone De-Foamer - Drilling Specialties ATF-S equivalent
- 4 D206 –Deformer equivalent

#### **i) Cement Expansion additive**

- 1 Microbond M equivalent
- 2 Expander Chemical - EC 1 equivalent

#### **j) Others**

- 1 Water gelling agent WG-17 (Drilling Specialties) HE-400 equivalent
- 2 PEN-5 equivalent
- 3 Silica flour SSA-1 equivalent
- 4 Water Shut Off polymer pills
- 5 Squeeze cement for micro annulus – SqueeCRETE equivalent
- 6 High performance ultra-light weight cement slurries – UltraLiteCRETE equivalent/ 8.0 ppg
- 7 High performance light weight cement slurries, LiteCRETE equivalent /10.5 ppg
- 8 Advanced Robust cement system, FlexSTONE 12.0 ppg equivalent
- 9 High density high performance cement system, DensCRETE equivalent/ 19.0 – 21.0 ppg

### Cementing Chemicals, Materials & Products (Cont.):

#### **k) Lost circulation Material**

- 1 Magne plus Acid Soluble Cement equivalent
- 2 Magne plus Retarder equivalent
- 3 Thermatek equivalents
- 4 Cementing Lost Circulation Fiber, D095 – CemNET Fiber equivalent
- 5 D111 - Thixotropic Slurry equivalent
- 6 Advanced Cementing Lost Circulation System D992 – Losseal W equivalent

#### **l) Weighting Material**

Weighting material (Manganese tetra oxide  $Mn_3O_4$  0.4 to 5 microns) for high density cement up to 22.0 ppg). W-10 equivalent

#### **m) Extenders**

Microsilica - Microblock L equivalent (Sp.Gr. 1.38 - 1.42, solids content 48-52%)

Compacted Microsilica - Powder - Microblock equivalent

Gel-Bentonite(Wyoming)

GEL-BENTONITE equivalent

Sodium silicate

Sodium meta silicate.

SURF WORLDWIDE can supply all type of chemicals & products in powder or liquid as required and are being widely used in the industry for cementing programs.

The products have been tested in accordance with the latest applicable ISO and API standards in order to assure delivery of the required properties. The Products' Material Safety Data Sheet as well as detailed product specification sheet are also available.

### General Supplies

SURF WORLDWIDE can supply all cementing and drilling accessories such as Cement Heads, hoses, section lines, manifold, Cross Overs, Pup Joints, etc.



## 4. Drill Bits :

SURF WORLDWIDE can supply various types of Drill Bits (Roller Cone & PDC) with special design & features to suit most of the oil/gas wells drilling applications in hard and/or soft formation, vertical and/or deviated wells.

The Drill Bits are available in different sizes which are tested in the industry and achieved the optimum performance in terms of Rate of Penetration (ROP) with long drill bit life.

The Drill Bits Types are classified as follows:

### A. **Roller Cone/Tri-Cone Bits:**

SURF WORLDWIDE can supply the Roller cone bits or Tri-cone bits fitted with roller bearings and can be used to drill any formations provided that the proper cutter, bearing, and nozzle are selected.

The Roller Cone bits are available in Milled-Tooth bits and Insert-Tooth bits as follows:

#### 1. **Mill Tooth Bits**

The Milled-tooth bits have steel tooth cutters, which are fabricated as integral parts of the bit cone. The bits cut the formations out when they are being rotated. The teeth pattern varies in size and shape, depending on the formation as follows:

- **Soft formation:** The teeth is long, slender and widely to cut freshly broken cuttings from soft formations.
- **Hard formation:** The teeth are short and closely spaced with the required protection in order to cut smaller, more rounded, crushed, and ground cuttings from hard formations.

**SURF WORLDWIDE can supply Mill Tooth Bits with following features:**

- A special roller bearing product is available in sizes from 14" to 45" for large hole size drilling with Tungsten Carbide Inserts or Steel Teeth cutting structures.
- The Tungsten Carbide Insert or Steel Teeth sealed journal bearing bits are available in different Bit sizes from 7 1/2" to 13 3/4" for sever applications with high rotary speeds as well as higher weight on bit.
- The Tungsten Carbide Insert and Steel Teeth sealed journal bearing products used in Slimhole with different bit sizes Available in sizes from 3 3/4" to 7 1/4" in either vertical hole or deviated holes on stick pipe, motors, or coiled tubing applications.
- The Hybrid roller cone design available in different sizes from 3- 5/8" to 5" with both a Tungsten Carbide Insert and Steel Teeth cutting structure for drilling frac plugs and other plugs typically used in horizontal drilling.
- Applications:  
Vertical and directional well profiles, Rotary or motor drilling, Surface hole or section drilling, Intermediate hole section drilling and Carbonate Rock drilling.

### Mill Tooth Bit



## 2. Insert Tooth Bits:

SURF WORLDWIDE can supply various types of Insert Tooth Bits with special design & features to suit most of the oil/gas wells drilling applications in hard and/or soft formation, vertical and/or deviated wells.

The Drill Bits are available in different sizes which are tested in the industry and achieved the optimum performance in terms of Rate of Penetration (ROP) with long drill bit life.

The Insert Tooth Bits are engineered with application specific technology to provide excellent steerability and high rates of penetration even in limited WOB applications. The bearing provides reliable performance in deep hole, long reach sections where increased temperatures and motor RPM's are commonly encountered.

The Bits have the following features / Benefits:

- **Advanced Cutting Structure with Gauge Protection:**  
Highly responsive cutting structures special for the high RPM with steering response. High shirrtail protection in the gauge of the slimhole bits provides superior durability in directional applications. Also, custom gauge row designs are available to optimize the bit for specific drilling applications based on customer need.
- **Patented Conical Seal Gland:**  
Constructed to resist cuttings intrusion, the unique geometry of the seal gland provides benefits during high angle directional drilling.
- **High Temperature and Lubricity Grease:**  
Advanced synthetic grease allows for improved lubrication and greater reliability in high speed motor applications.
- **Advanced Bearing Metallurgy:**  
Compass bits are equipped with a silver plated journal bearing bushing, silver plated thrust washer, pilot pin and bearing hard metal alloy for increased durability and reliability.

### B. Fixed Cutter/PDC Bits:

SURF WORLDWIDE can supply fixed Cutter/PDC bits fitted with special PDC cutters which can be used to drill any formations provided that the proper cutter and nozzle are selected with the following features:

- dual cutting structure, diamond impregnated matrix and PDC cutters to be used in abrasive rock follows softer formation without bit change.
- Cutters with both round and oval geometries to enhance bit performance.
- bi-center bits to enlarge the wellbore by drilling up to 25 percent larger than the pass through wellbore in all types of PDC drillable formations.

### Insert Tooth Bit



### Fixed Cutters/PDC Bit



## 5. Wellhead & Pressure Control Equipment :

SURF WORLDWIDE can supply various types of Wellhead, Christmas Trees (X-mass Trees), Valves and Pressure Control Equipment in full compliance with API 6A (20th edition) and NACE MR0175 with working pressure up to 15,000 psi. The Wellhead Assembly includes the Casing Housing, Casing Spools, Tubing Spools, Adapter Spools, Tubing Bonnets, Christmas Trees (X-mass Tree) and Production Valves in different sizes with special seal design (primary & Secondary) , materials grades (AA, BB, CC, DD, EE, FF & HH) manufactured under all PSL levels (PSL-1, PSL-2 & PSL-3 G) with Cladding features complete with actuated control valve system to suit most of the oil and/or gas wells production/control applications in low and high pressures with different type of production techniques using single and/or dual completions. The Wellhead supply are categorized as conventional wellhead, multi bowl wellhead, integral/compact wellhead, dual completion/tubing wellhead and ESP wellhead:

### A. Conventional Wellhead:

This Type of Wellhead can be supplied in all sections (A, B, C, D &E) with standard & customized sizes, material grades, PSL levels applicable for all well depths and completion arrangements with double 45°load shoulders, upper load shoulder supporting hanger seal and pressure test, lower one supporting casing string independently. Also, available in various secondary seals.

Specification: 2 1/16"~4 1/16"

Working Pressure: 2,000~15,000psi

Working Medium: Crude oil, natural gas, mud and gas (H<sub>2</sub>S or CO<sub>2</sub>)

Temperature Level: K~X (-60°C~180°C)

Material Grade: AA, BB, CC, DD, EE, FF, HH

Manufacturing Level: PSL1~PSL3G

Performance Level: PR1~PR2.

### B. Multi Bowl Wellhead

This Type of Wellhead can be supplied in all sections (A, B, C, D &E) with standard & customized sizes, material grades, PSL levels applicable for all well depths and completion arrangements. The Upper and lower casing heads are installed independently, saving time and labor. In addition, the Casing, tubing, hanger and seal can be installed without having to installing and removing BOPs frequently. Also, 45°load shoulder and straight bore design reduces body load.

Specification: 2 1/16"~4 1/16"

Working Pressure: 2,000~15,000psi

Working Medium: Crude oil, natural gas, mud and gas (H<sub>2</sub>S or CO<sub>2</sub>)

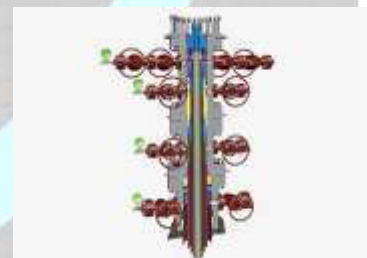
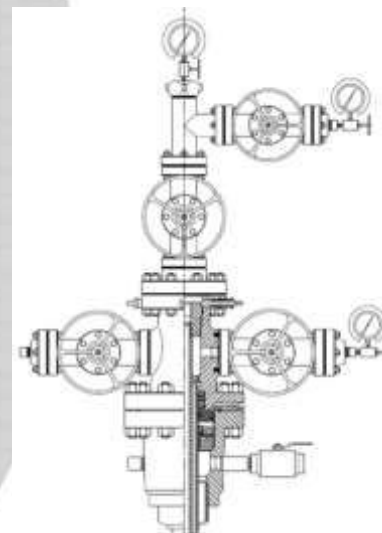
Temperature Level: K~X (-60°C~180°C)

Material Grade: AA, BB, CC, DD, EE, FF, HH

Manufacturing Level: PSL1~PSL3G

Performance Level: PR1~PR2.

### Wellhead Equipment





## C. Compact/Integral Wellhead:

SURF WORLDWIDE can supply Integral/ Compact Wellhead, with standard & customized sizes, material grades, PSL levels applicable for all well depths with working pressure up to 15,000 psi. This Wellhead Assembly has an Integral structure, compact size, less leak points Easy installation, reducing time and labor and the Casing, tubing, hanger and seal can be installed without having to installing and removing BOPs frequently.

Specification: 2 1/16"~4 1/16"  
 Working Pressure: 2,000~15,000psi  
 Working Medium: Crude oil, natural gas, mud and gas (H<sub>2</sub>S or CO<sub>2</sub>)  
 Temperature Level: K~X (-60°C~180°C)  
 Material Grade: AA, BB, CC, DD, EE, FF, HH  
 Manufacturing Level: PSL1~PSL3G  
 Performance Level: PR1~PR2.

## D. Dual Completion/Tubing Wellhead:

This Type of Wellhead can be supplied in all sections (A, B, C, D &E) with standard & customized sizes, material grades, PSL levels applicable for all well depths and dual completion arrangements with compact size, small footprint that can be used on two oil layers simultaneously, independent running & retrieving of each string with higher output and less string use. In addition to high sealing capability and reliability.

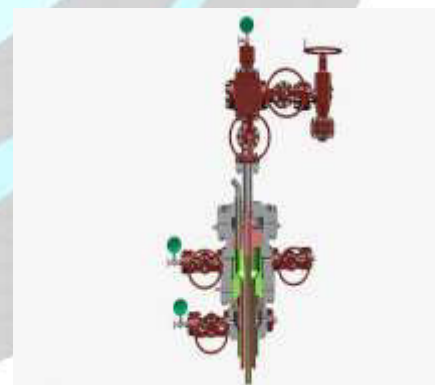
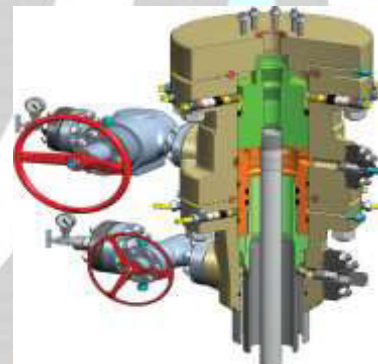
Specification: 2 1/16"~4 1/16"  
 Working Pressure: 2,000~15,000psi  
 Working Medium: Crude oil, natural gas, mud and gas (H<sub>2</sub>S or CO<sub>2</sub>)  
 Temperature Level: K~X (-60°C~180°C)  
 Material Grade: AA, BB, CC, DD, EE, FF, HH  
 Manufacturing Level: PSL1~PSL3G  
 Performance Level: PR1~PR2.

## E. ESP Wellhead:

This Type of Wellhead can be supplied in all sections (A, B, C, D &E) with standard & customized sizes, material grades, PSL levels applicable for all well depths and ESP completion arrangements with special design Suitable for ESP cables of various sizes, reliable insulation and sealing capability & equipped with cable penetrator and SSV control lines.

Specification: 2 1/16"~4 1/16"  
 Working Pressure: 2,000~15,000psi  
 Working Medium: Crude oil, natural gas, mud and gas (H<sub>2</sub>S or CO<sub>2</sub>)  
 Temperature Level: K~X (-60°C~180°C)  
 Material Grade: AA, BB, CC, DD, EE, FF, HH  
 Manufacturing Level: PSL1~PSL3G  
 Performance Level: PR1~PR2.

## Wellhead Equipment



## **II. Rental Equipment & Services**

SURF WORLDWIDE has the ability to provide a wide range of rental equipment & services at a highly-focused, quality-driven service to the Oil & Gas Well customers with the aim to maintain the Business Continuity.

The Fleet of Rental Equipment & Services includes the following:

1. Drilling Rigs (offshore/onshore)
2. Slickline Units, Cranes, Downhole Equipment,
3. Downhole Equipment (Jars, Subs, Monel, Shock Absorber, Reamers, Hole Opener),
4. Solids Control Equipment & Drilling Waste Management,
5. Drill Pipes, Collars, BOP.
6. Integrated Drilling/Project Management,
7. Technical Support & Consultancy,
8. Well Surveillance & Software.

### **1. Drilling Rigs**

SURF WORLDWIDE has excellent connections with direct access to Rig providers in the Middle East & GCC and authorized to market their fleet of rigs and this includes all type of rigs such as Water Rigs, Workover/Service Rigs, Land Drilling Rings, Jack-Up Rigs and Drill ships.

The Rigs are available with all capacities required to complete the designated drilling/workover programs and are fully equipped with list of equipment such as BoP, mud pumps, mud system with solid control equipment, drill string and handling tools for the drill string, crane, forklift, safety gear and telecommunication system.

Rigs will be provided with Rig crew who are so familiar with the rig operations at the utmost level of experience and communications.

For Offshore Rigs, it will be delivered with safety boats and can be provided with supply boats but will be with additional charges.

Rig delivery will be based on the following:

- 1- Availability of rig at the time of Customer Request,
- 2- Customer Territory,
- 3- Type of Contract, Terms & conditions & Duration,

Most of the drilling rigs are equipped with Top Drive and ESCR power system and also with all inspection & testing certificates in accordance with IADC and API standards.

SURF WORLDWIDE has a highly qualified specialist team who is handling the rig business. In addition, SURF WORLDWIDE can also provide on day rate highly qualified manpower support (Rig Crew) required to operate both land or offshore rigs. This will include robust-about, Rig Mechanic & Electrician, Radio Operator, Crane Operator, Forklift Operator, Floor man, Derrick man, Ass Driller/Driller, Rig Superintendent, Drilling Op's Engineer and Rig Manager.

SURF WORLDWIDE can also provide Drill Pipes, Drill Collars & Heavy Weight Drill Pipes in different grades, sizes on rental basis to the customer need.

## 2. Slickline Units & Equipment:

### Slickline Equipment

SURF WORLDWIDE can provide the slickline units with all associated equipment on rental basis that can suit the Customers' needs in onshore & offshore Operation which include the following:

#### **A. Integrated 4x4 chassis, Slickline unit:**

The unit can be supplied with the following specifications:

- zone 2 engine.
- Integral double drum unit (can be powered via PTO off truck engine or have independent engine).
- Double drums comprising of + 20,000' x 0.125" and + 20,000' x 0.108" for Double Drum Unit resisting to H<sub>2</sub>S & CO<sub>2</sub>.
- The Slickline Trucks is designed to be able to drive on the desert and shall be powered by either 4x4 drive system and has the following:
  - dual purpose Pressure test / Well control panel suitable for various aspects in Slickline operations to operate Dual BOP'S, Stuffing Box, Hydraulic Master Valve and SCSSSV.
  - backup Nitrogen bottle fully equipped with Alarm system + Compressor + Water tank, all equipment built in the Slickline Truck for Emergency use.



#### **B. Skid mounted Slickline Flyline Unit:**

The skid mounted Slickline Flyline Unit with the following specifications:

- zone 2 rated engine.
- Integral single drum unit comprising of + 20,000' x 0.160" resisting to H<sub>2</sub>S & CO<sub>2</sub>.

#### **C. Pressure Control Equipment:**

The list of Pressure Control Equipment includes all types of adapters, BoP's, Flanges, Lubricators, Pumping Tees, Back Pressure Valve, etc.

#### **D. Downhole Equipment:**

The list of downhole equipment includes joints, plugs, gauge cutters, safety joints, bars.





### 3. Solids Control & Waste Management:

- SURF WORLDWIDE can supply all types of Solids Control for complete Mud System made in Europe, USA and/or China, which are all manufactured in accordance with the Standards of API Q1, CE/ HSE, ISO14001, ISO 28001, and CR-TU certificates.
- SURF WORLDWIDE can supply Solids Control manufactured at High-Tech Enterprise with specialized making high quality shaker screens, and the Waste Management System is comprehensive enough to give one- stop turn key solution.
- The Solid Control & Waste Management System can be classified as the safest and the best cost-effective solutions.
- The Delivery time of commodity supply regularly ranges from 4 up to 6 months based on the following:
  1. The items supply from the Stock or as a Mill-Run Item,
  2. The volume, capacity, and the output requirements of the equipment,
  3. TPI & QAQC standard or special requirement from the client,
  4. The Purchase Order Quantity.
- SURF WORLDWIDE can supply a Multi-Tank Solids Control System for oil gas drilling, deep well drilling from 500M to 9000M. Complete mud system with 4 phase solids control include: Shale Shaker, Mud Cleaner (Desanders and Desilters assembly) vacuum degasser, decanter centrifuges, mud tanks, pumps, agitators etc.
- SURF WORLDWIDE can supply Mud Recycling System models ranges from 200 GPM up to 1000 GPM.
- SURF WORLDWIDE can supply Desanders plants models ranges from 200 GPM up to 2000 GPM:

#### Solids Control System



#### Mud Recycling System



#### Desander Plant



## Solids Control & Drilling Waste Management List of Products:

SURF WORLDWIDE can supply all equipment required for the Solids Control & drilling waste as below:

- Decanter Centrifuge
- Mud Cleaner
- Desander & Desilters
- Vertical Cuttings Dryer
- High G-Drying Shaker
- Screw Conveyor
- Dewatering Unit
- Cuttings Solidification Unit
- Shale Shaker
- Shaker Screen
- Degassers
- Various Pumps
- Mud Agitator & Mud Gun
- Jet Shearing Hopper
- Mud Tank & Mud System

### Decanter Centrifuge



### Vertical Cutting Dryer



### High G-Drying Shaker





## List of Products, cont.:

SURF WORLDWIDE can supply all equipment required for the Solids Control & drilling waste as below:

- Decanter Centrifuge
- Mud Cleaner
- Desander & Desilters
- Vertical Cuttings Dryer
- High G-Drying Shaker
- Screw Conveyor
- Dewatering Unit
- Cuttings Solidification Unit
- Shale Shaker
- Shaker Screen
- Degassers
- Various Pumps
- Mud Agitator & Mud Gun
- Jet Shearing Hopper
- Mud Tank & Mud System

## Screw Conveyor



## Solidification Unit



## Vacuum Pump





## 1. Oil Sludge Treatment System:

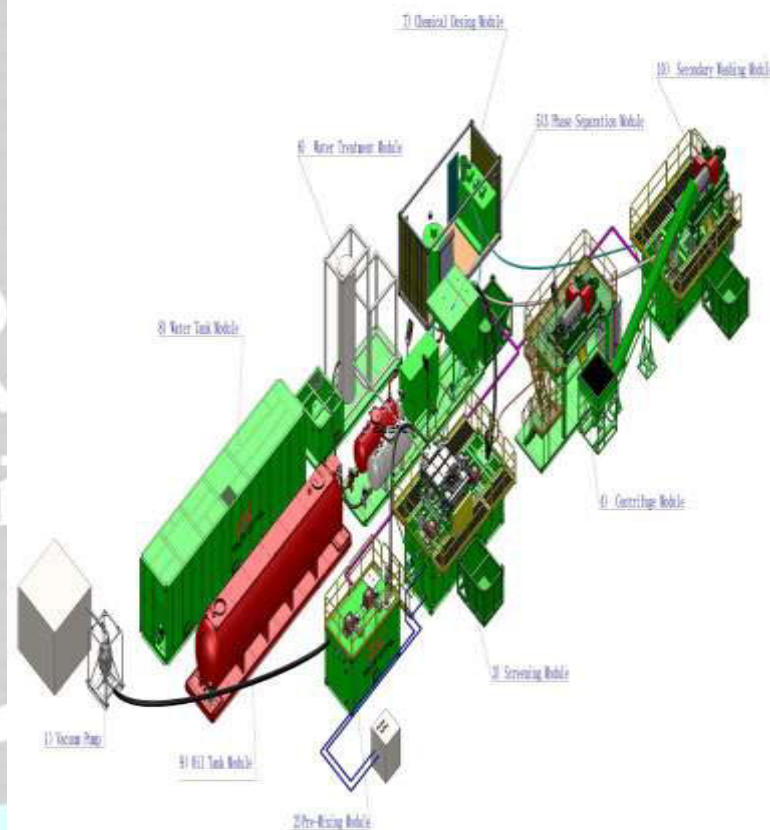
SURF WORLDWIDE can supply the Oil Sludge Treatment System for the following applications:

1. Tank Cleaning Oil Sludge System,
2. Refinery Oil Sludge Treatment,
3. Drilling Oil Sludge Waste,
4. Other Oily Sludge.

**The Oil Sludge Treatment System Main Equipment are as follows:**

5. Pre-Mixing and Heating System
6. High G force Shaker for coarse solids removal
7. Oil Sludge Washing and Mixing Tank.
8. Decanter Centrifuge for sludge and liquid separation
9. Chemical Dosing System for oil sludge washing.
10. 3 Phase separation System for Solids, Oil, and Water separation.
11. Micro Bubble Water Treatment to reduce water in the oil below 50 PPM.
12. Thermal Desorption Unit to reduce the oil on the sludge to below 0.3% -1%.

## Oil Sludge Treatment System



## 2. Drilling Waste Treatment Unit:

SURF WORLDWIDE can supply the Drilling Waste Treatment System for Zero Discharge Solutions; which include the following:

### 1. Dewatering Unit

The dewatering unit is 20FT and when it is used, results in a chemically enhanced flocculation of colloidal and ultra-fine drilled solids that can be efficiently removed with a GN dewatering centrifuge. It Removes the Ultra-Fine drilled Solids.

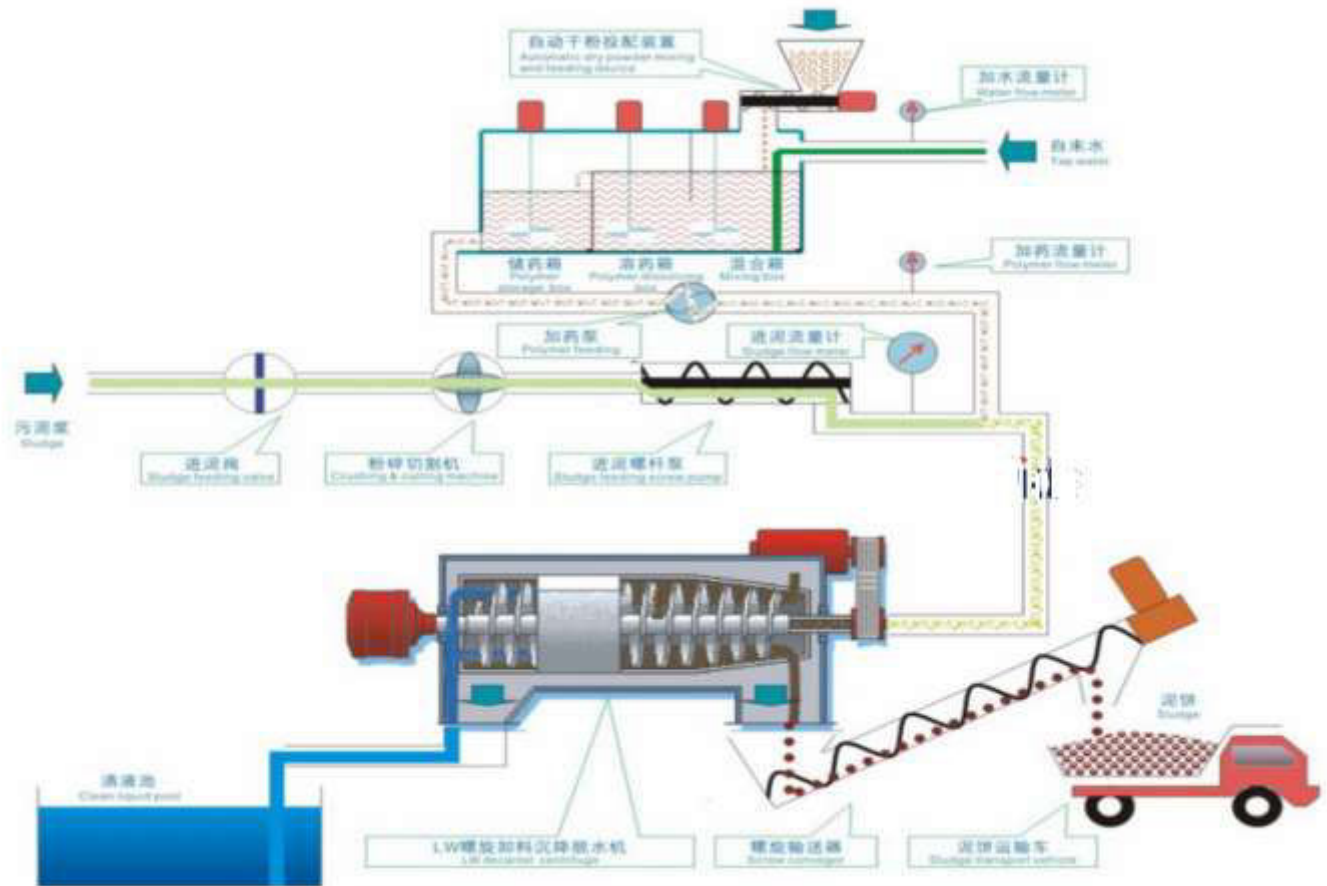
#### Dewatering Unit Features & Benefits:

- It is widely known traditional solids control equipment like shale shaker, desander desilter, and decanter centrifuge will remove solids upper than 5 microns, for colloidal-size particles which is less than 5 microns will build up in the drilling mud system. To maintain the drilling mud properties, the operators have to dilute the drilling fluids with water, this consumes more water and create more drilling waste.
- For limited and zero discharged closed loop system, the dewatering unit is a very important unit to keep the mud clean and reduce the drilling waste which has to be sent for treatment and disposal. Before entering the dewatering phase, for the weighted drilling mud, firstly it enters a barite recovery centrifuge to recovery the barite to the active mud system.

### Drilling Waste Treatment Unit



## Dewatering Unit Flow Chart





## 2. Solidification Unit

The drilling cuttings stabilization /solidification unit provide an effective method for processing oil- base waste and water-based waste. In a result, it produces an environmentally safe, dry material that is acceptable for onsite, or land farming disposal at an approved waste facility

### Solidification Unit

#### Solidification Unit Working Process:

- 1) Drilling waste collection hopper collects all the drill cuttings & drilling waste, which is transported to the mixing chamber by the underneath screw conveyor at pre-set capacity.
- 2) Cement storage box is keeping cements powder, through the tubular screw conveyor, powders are sent to the mixer at pre-set capacity.
- 3) In the same way, absorber is kept in a box, then sent to the mixer by tubular screw conveyor.
- 4) There are 2ea 1.5inch liquid inlet, for water feeding, liquid chemical feeding located beside the mixer inlet.
- 5) The high-shear mixer mixes all the material, and push to the front at the same time. When the solids go to the discharge port, it is already mixed sufficiently, then discharge.
- 6) Drilling waste is solidified by our innovative blending technology and can be processed continually on-site. The dosing rates of the absorber and the sludge, cements powder can be adjusted accordingly. After processed, the drilling cuttings are eco-friendly and environmentally safe for disposal.



### 3. Thermal Desorption Unit (TDU)

The Thermal Desorption unit indirectly applies heat to the Oil Based Mud Drilled Cuttings while isolating the flame from the cuttings. The oil vapor is isolated, so it can be recovered, condensed, and recycled, eliminating long-term liability.

### Thermal Desorption Unit

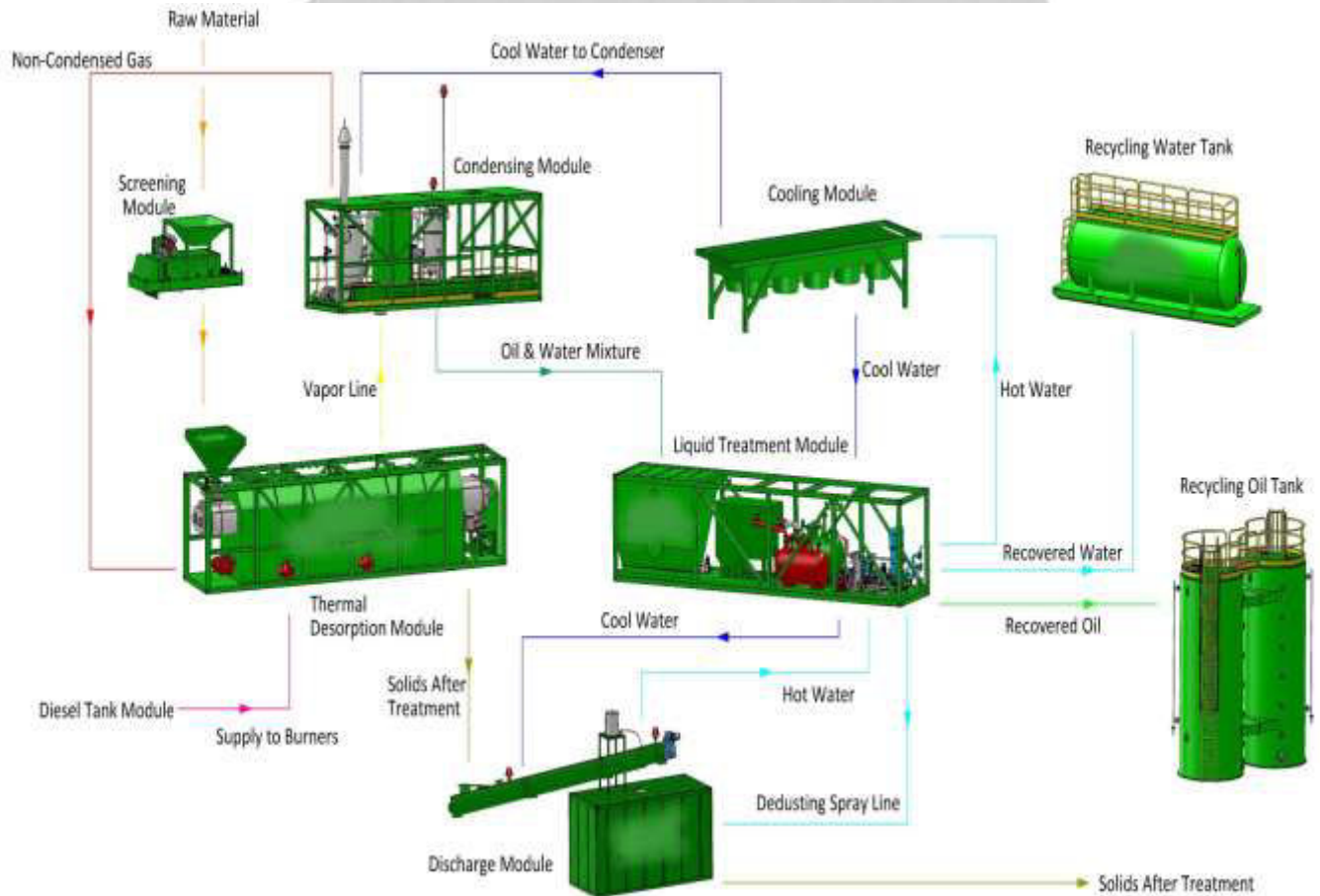
#### Thermal Desorption Unit Features &

##### Benefits:

- 1) Mobil and some ex-situ, non-incineration technology designed to separate hydrocarbons from various matrices including oilfield waste, soil, sludge, sand, filter-cake, tank and tanker bottoms, organic-based hazardous waste and contaminated soil in a non-oxidizing atmosphere without destroying the hydrocarbons.
- 2) Popular for treatment of different waste streams in particular oily sludge, drill cuttings, organic-based hazardous waste processing and contaminated soil remediation.
- 3) has been used extensively for waste management, and recovery of the oil from the waste material as a sellable product throughout the world.
- 4) Indirect heated treatment technology. oily waste will be heated firstly. The oil and moisture will vaporize, and vapor will be quenched and condensed for oil/water separation.



## Thermal Desorption Unit Flow Chart





## 4. Cuttings Dryer

- The Vertical Cuttings Dryer (VCD) has special design to suit all types of mud; oil base and water base mud cuttings i.e. OBM, SBM & WBM
- The VCD speed is around 900 RPM with G force for up to 750G for the best separation ability.
- The VCD has a brand premium bearing

## Cutting Dryer



### Cuttings Dryer Working Process:

- Screw conveyors (3) will convey the drilling cuttings(solids) discharged out from shale shaker(1) and mud cleaner(2) after treatment to the vertical cutting dryer(4).
- The dryer will take oil or water from the drilling cuttings, leading to the direct disposal of dried enough cuttings (5); while the liquid(6) flows into a catching tank(7) for storage where it will be pumped into a decanter centrifuge(9) by a screw pump(8) for further treatment to make more clean liquid return to the whole active drilling mud system(11).



The Flights on the rotor is hard facing to HRC 65, longer life than our competitors.

The flights and the rotor assembly is individually balanced for future replacement.



● Specially designed highly precise stainless steel screen to ensure your better separation, longer life and easy replacement.  
The screen itself is individually balanced for future replacement. And the screen is separated from the frame which allows you to change the screen only, not need to change the frame inside.



● Special high pressure air knife design to clean the basket screen automatically to avoid the screen blinding especially for high viscosity mud and water based mud.



● All around flushing system through specially designed nozzle to avoid the block of the liquid discharge channel.

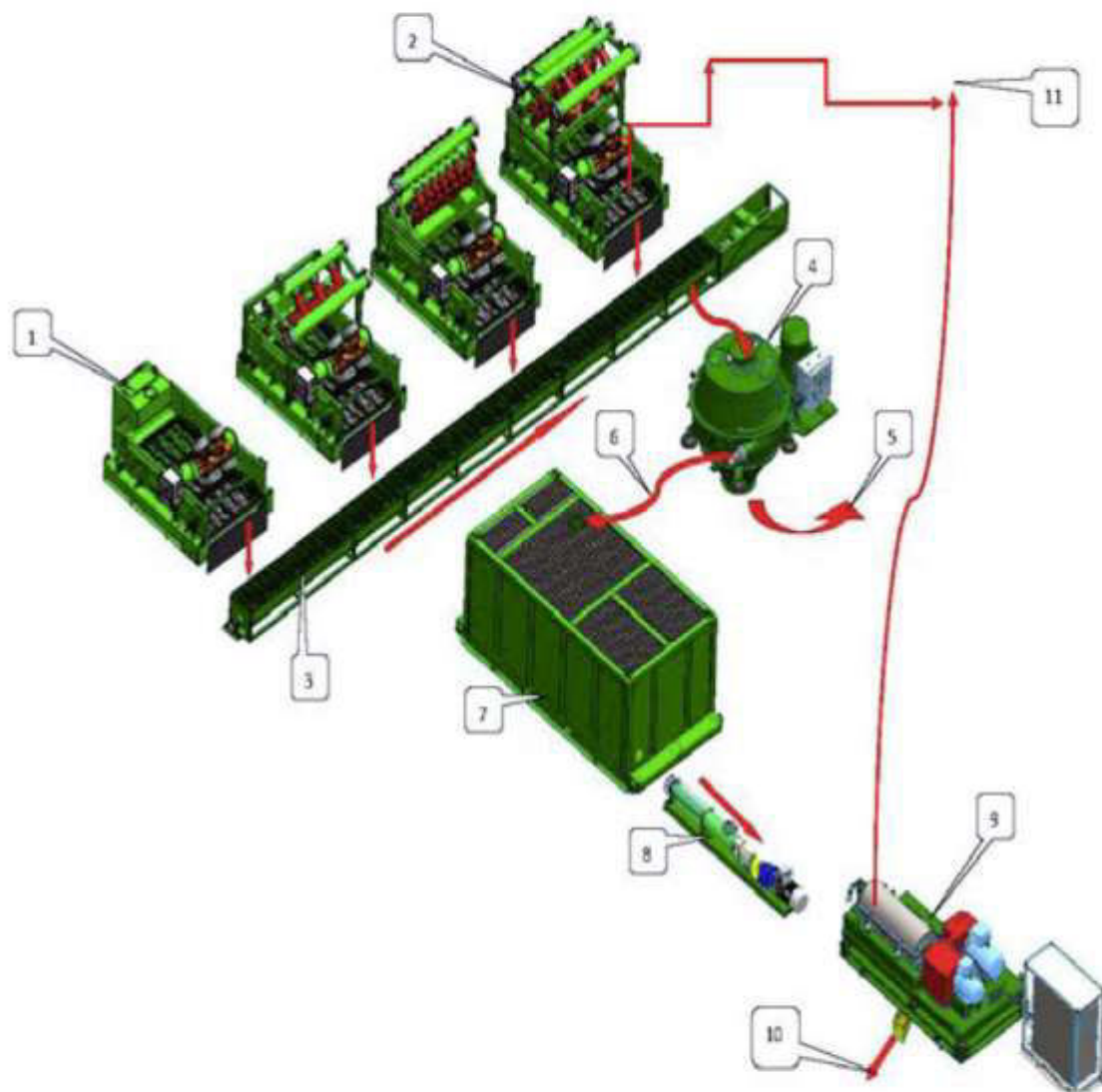


● Individual oil lubrication system with automatic alarm for pressure limit. The main rotor and oil pump motor is interlocked with each other for avoiding the start of the main rotor prior to the start of the oil pump motor.



● VFD cuttings dryer control panel is made of stainless steel with Pressurized explosion proof. The PLC smart control allows you to adjust the speed and protect the machine more flexibly.  
The air circulation through the cooling tubes allow you to use the VFD cuttings dryer in high temperature environment.  
The VFD is ABB or SIEMENS Brand, other main electric components are Schneider or SIEMENS Brand.

## Cuttings Dryer Flow Chart



## Cuttings Dryer Oil Base Mud Treatment



● Before treatment



● After treatment, Oil on the Cutting :2.9%

### Operation Record



A Oil on the cuttings before treatment.

B Oil on the cuttings for the drilling cuttings discharged from GN Vertical Cuttings Dryer.



**Cuttings Dryer Water Base Mud Treatment**



Drilling Waste Mud Before Treatment



Drilling Waste Mud After Treatment

## **Drilling Mud Waste Management Projects**

SURF WORLDWIDE principal has successfully completed more than 40 projects worldwide in USA, Europe, Africa & China.



Shell Project in China



Europe Cyprus Project



Africa Project



Russia Project

### 3. Downhole Tools & Accessories:

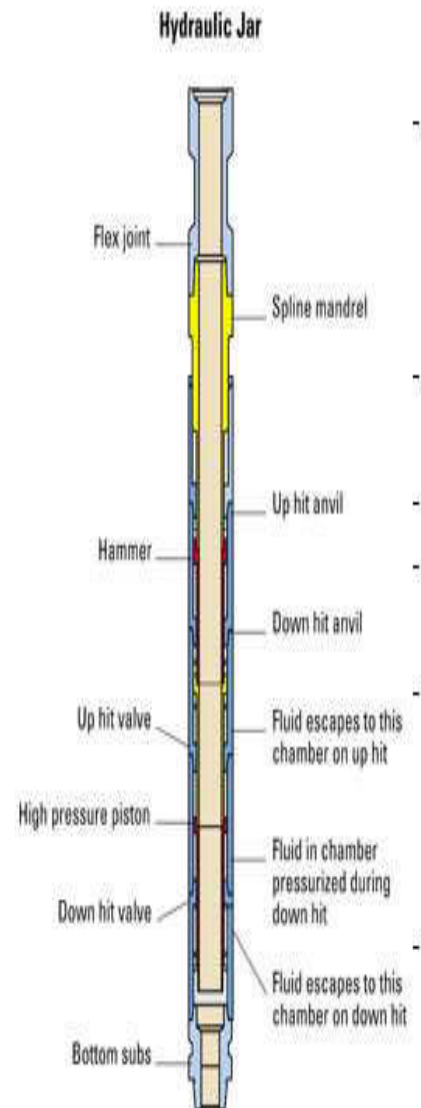
SURF WORLDWIDE can supply the Drilling Tools Equipment; which include the Drilling Jars (Hydraulic, Mechanical & Hydro-Mechanical), Shock Sub, Roller Reamers, UnderReamers, Hole Openers, Circulating sub (Multiple Activation System), Dog Leg Reamer (DLR) & Stabilizers (String & Near Bit),

#### I. Drilling /Fishing Jars and Accelerators:

SURF WORLDWIDE can supply various types of the drilling and/or fishing jar tool that will be used for block release. In case of stuck, it is released through a heavy up or down jarring on the right place.

- i. YJ-A (hydraulic/mechanical) Drilling Jar: is also an up and down jarring that is designed as an assembly. The jar was developed to overcome the shortcomings associated with purely hydraulic or mechanical jars, yet retain the advantages of both concepts. Less restricted jar placement (in tension, neutral or compression) in the BHA. It characterizes that the release forces in jarring up or down can be adjusted on the rig on the rig site and its adjusting operation is very simple, exact and stable. It is a new advanced jar.
- ii. QJ-K Drilling Jar (mechanical) is integrated with up and down jarring. It characterizes simple structure, short length and convenient maintains.
- iii. QJ-A Drilling Jar (mechanical) is also an up and down jarring that is designed as an assembly. It characterizes that the release forces in jarring up or down can be adjusted on the rig site and its adjusting operation is very simple, exact and stable.
- iv. SS series Drilling Jar Up (hydraulic) and SX series Drilling Jar Down (mechanical) may be used as a set or trip in separately.
- v. CS series Fishing Jar Up (hydraulic) characterizes simple structure and stable performance and will perform better if used together with the accelerator.
- vi. DX-A series Surface Jar Down (mechanical) is a new improved tool. The jarring force can be adjusted easily at rig floor.
- vii. The accelerator may be used together with the drilling jar to ensure max jarring efficiency in directional drilling where wall drag is a problem, or in shallow holes where pipe stretch is insufficient. Besides, it can absorb much of the shock of the rebounding string after the jarring, protect tools and string from damage.

### Downhole Tools & Accessories





## Jars/Accelerators Specifications

### Jar Technical Data:

Name	Model	OD	ID	Length	Max. Tensile	Max Torsional	Thread	Preset Release Force (Tolerance±15%)		Max. Release Force (Tolerance± 15%)	
								Up (lb)	Dow(lb)	Up (lb)	Dow(lb)
Drilling Jar, Mechanical (Mechanical)	QJ159K-I	6-1/4"	2-1/4"	12'	1500	14	4 1/2 IF	600±120	350±70	750	450
	QJ165K-I	6-	2-1/4"	12'	1500	14	4 1/2 IF	650±130	350±70	800	450
	QJ203K	8"	2-3/4"	15'	2200	18	6 5/8 REG	800±160	450±90	1000	600
	QJ120A-I	4-	1-3/4"	18'	1000	12	3 1/2 IF	400±20	250±20	500	300
	QJ159A-I	6-	2-1/4"	18'	1500	14	4 1/2 IF	600±30	350±30	700	400
	QJ165A-I	6-	2-1/4"	18'	1500	14	4 1/2 IF	650±30	350±30	750	400
	QJ178A	7"	2-1/4"	19'	1800	15	4 1/2 IF	700±30	400±30	800	500
	QJ203A	8"	2-3/4"	19'	2200	18	6 5/8 REG	800±40	450±40	900	550
	QJ229A	9"	2-3/4"	19'	2500	20	7 5/8 REG	1000±50	500±50	1100	600
Drilling Up Jar, Hydraulic (Hydraulic)	SS159-I	6-	2-3/4"	18'	1500	14	4 1/2 IF	300 ~ 450	X	700	X
	SS165-I	6-1/2"	2-3/4"	18'	1500	14	4 1/2 IF	300 ~ 450	X	700	X
Drilling Down Jar, Mechanical(Mechanical)	SX159-I	6-	2-3/4"	17'	1500	14	4 1/2 IF	X	180 ~ 250	X	350
	SX165-I	6-1/2"	2-3/4"	17'	1500	14	4 1/2 IF	X	180 ~ 250	X	350
Super Up Jar, Hydraulic(Hydraulic)	CS121	4-	1-3/4"	12'	1000	12	3 1/2 IF	150 ~ 250	X	350	X
	CS159	6-	2-1/4"	14'	1500	14	4 1/2 IF	300 ~ 450	X	700	X
	CS165	6-	2-1/4"	14'	1500	14	4 1/2 IF	300 ~ 450	X	700	X
	CS178-I	7"	2-1/4"	14'	1800	15	4 1/2 IF	350 ~ 550	X	800	X
	CS203	8"	2-3/4"	15'	2200	18	6 5/8 REG	400 ~ 600	X	1000	X
Surface Down Jar, Mechanical(Mechanical)	DX178A-I	7"	2"	13'	1800	15	4 1/2 IF	X	400±20	X	700
	DX178A16-I	7"	2"	17'	1800	15	4 1/2 IF	X	400±20	X	700

### SPECIFICATIONS FOR ACCELERATOR

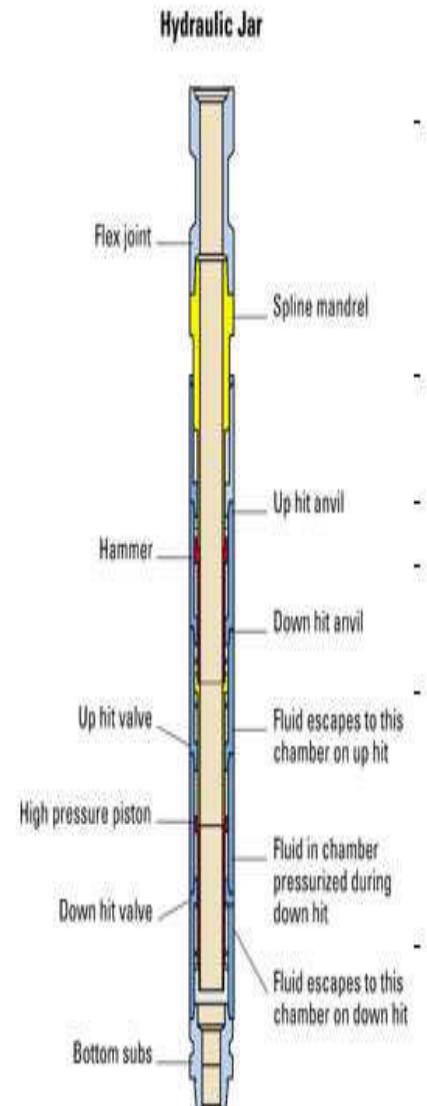
Model	OD	ID	Length	Max. Work Tensile load lb-ft	Max. Work Torsional load lb-ft	Thread	Standard Pull lb-ft
ZJS158	6-1/4"	2-1/4"	14'	1500	14	4 1/2	700
ZJS165	6-1/2"	2-1/4"	14'	1500	14	4 1/2	700
ZJS178	7"	2-1/4"	12'	1800	15	4 1/2	800
ZJS203	8"	2-3/4"	14'	2200	18	6 5/8	1000

## II. Downhole Tools & Accessories:

SURF WORLDWIDE can also supply the following types of drilling & fishing jars:

- viii. **JZ Mechanical Drilling Jar**; which can perform mechanical jarring in both directions.
- ix. **JSZ Mechanical Drilling Jar** integrates the up jarring with the down jarring, with a shorter length at present. It can reduce the harmfulness of the flexural stress in down-hole operation, so it is more safe and reliable and is superior in offshore drilling and directional drilling.
- x. **JYQ Double Acting Hydraulic-Mechanical Drilling Jar** is a jarring and stuck releasing tool. It integrates the up jar and down jar impact and can release the stuck accident occurring during drilling. Upon the request, the tool can automatically control the impact strength and times of jarring. It is an ideal tool for vertical well and deflecting well.
- xi. **QY Hydraulic Drilling Jar** - When down-hole drilling tools are stuck, the jar can provide a huge impact to unfreeze with up jarring or down jarring, thus normal drilling can be recovered quickly.
- xii. **YSJ Fishing Jar** is designed on the hydraulic principle.
- xiii. **CSJ Super Fishing Jar** is a hydraulic jar with a compact design, reliable seal, high strength and optimum up jarring effect.
- xiv. **YJQ Jar Intensifier** is designed on the principle of compressible fluid. It is used in conjunction with YSJ fishing jar and CSJ super fishing jar respectively. It is installed above the fishing jar and the drill collar in operation. Its function is to impart acceleration to the up-jarring rod so that the optimum upward jarring effect is obtained.
- xv. **DJ Surface Bumper Jar** is used to free down-hole stuck tools by producing downward jarring impact to the stuck portion at the surface of drilling platform, having the advantages of powerful jarring impact, reliable tonnage-adjustment and convenient utilization. It is especially effective for freeing key seal, tight-hole or sticky stuck tools.

## Downhole Tools & Accessories



### III. Downhole Tools & Accessories:

SURF WORLDWIDE can supply the following downhole drilling tools & accessories:

- **Type SJ Shock Absorber, Type YJ Hydraulic Shock Absorber, Type DHJ Mechanical-Hydraulic Shock Absorber;** which should be connected with the drilling string close to the bit. It can reduce or absorb both longitudinal and circumferential vibration of the drilling string in drilling operations. It can achieve the optimum combination of drill pressure and drill speed, reduce the drilling cost and promote the drilling efficiency.

- **Type WH Sleeves Stabilizer** has the functions of integral spiral stabilizer. It can be suitable for the well with different diameters by changing different bearing sleeves, and also can be extended the service life by replacing the same bearing sleeve.

- **Type HYQ Reamer:** We have two type of tri-cone reamers - Drill string type and down-hole type.

- **Type TLQ Hydraulic Thruster** changes bit nozzle or down-hole motor pressure drop into drilling pressure, which can not only solve the problem of different application on drilling pressure in directional wells or horizontal wells, but also can act as a compensator of lifting or dropping in offshore drilling operation. The tool can also improve the deformation of drill tools, reduce the damage of drill tools and improve drilling speed.

- **Type FF Float Sub** is a new-style drilling tool inside blowout prevent. During normal drilling, valve is opened and drilling fluid circulation is fluent. When kick or blowout happens, the valve cap shut off in order to achieve blowout prevention. When tripping in or out, it prevents drilling fluid flowing from back and prevent mud entering into the drill string to realize the function of preventing block. It is a special tool for preventing blowout and block in drilling operation.

### Downhole Tools & Accessories

#### Type WL Integral Blade Stabilizer



#### Type DZ integral Short Drill Rod, Type DZT Short Drill Collar, Type ZT Slick Drill Collar meet API specification & Type SZT Spiral Drill Collar.





#### IV. Downhole Tools & Accessories:

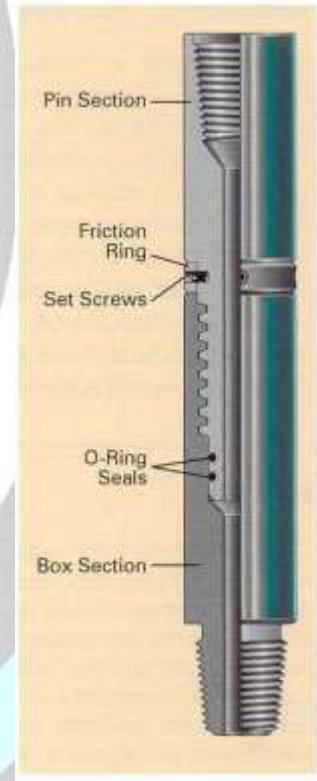
- **HY Throw-Type Back Pressure Valve** is an internal prevention. When blowout is going to happen, the Kelly rod should be removed immediately, and the back-pressure valve assembly should be put into the water hole and then pumped downward to the required place. Thus, the blowout can be prevented.
- **Type JF Arrow Back-Pressure Valve** is a sort of important blowout control tool of inside of the drill pipe. It is used directly connection to drill stem and can prevent high-pressure oil stream from blowing out from drilling tool.
- **SJF Double Function Arrow-Shaped Back-Pressure Valve** is an integrated tool which has functions of both the arrow-shaped back pressure valve and the mud globe valve. It reduces mud loss and ensures a clean rig floor.
- **TSDJ Lifting Sub**
- **Crossover Sub** is mainly used for conversion and connection of the drilling string components. .

#### **Fishing Tools:**

- **Type AJ Safety Joint** is an essential safety tools for connecting the pipes in the well. The joint body is designed with the coarse buttress threads or special trapezoidal threads.
- **Type CL Fishing Magnet** can magnetize and absorb small fallen metal substance, such as gear wheel, palm, tongs tooth,.
- **Type LL Reverse Circulating Junk Basket** is used to retrieve small-sized fishes, such as cone, cutter, hand tools and junks from the hole. The drilling mud can produce reverse circulation locally at the bottom of a well; therefore, the fishing is easy. Moreover, it can be used as a special coring tool.

#### Downhole Tools & Accessories

##### **Fishing Tools**



## Downhole Tools & Accessories:

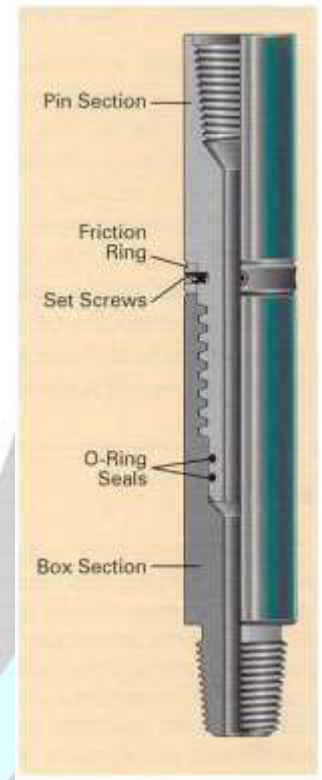
- **Type LB Junk Sub** is a practical and effective tool. It can be used to recover the heavier drilling cuttings or metal chips which are difficult to be lifted out of the borehole by normal drilling fluid circulation.
- **Type TLM (LM) Grapple Releasing Spear** is a simply constructed and high strength fishing tool by which fishing job is performed through the interior bore of the fish. It is mainly used to recover the lost drill string, tubing and casing, and can also be used in conjunction with internal cutter, bumper jars, etc. to finish cutting and recovering at the same time.
- **LT-T Overshot** is an effective tool used for catch the fish with smooth external surface. Its circulation can be carried out under high pump pressure and the fish can be released on the inside of well. According to different application, it may be equipped with some accessories, such as extension sub, wall hook, enlarged guide, etc.
- **DLQ Fishing Multifunction** is a new and ideal fishing tool for cleaning the bottom of well. This Three-in-One tool has the functions of fishing cup, fishing magnet and claw fishing basket. It can be used for clawing the large-sized gear wheel and tong's tooth.

## Workover Tools & Accessories:

- **GGQ Casing Scraper** is used to clean up the dirt which may be left over the internal wall of the casing, such as solid cement, hard wax, various salt crystals or deposits, perforation burrs, iron oxide resulted from rusting so as to make all down-hole tools can get past unblocked.
- **TDX Casing Milling Tool** is a requisite tool of milled window in casing, it used to cut and milling off a length of down-hole casing to sidetrack drilling. Casing milling and sidetrack drilling is a kind of process to drilling horizontal well and directional well in casing side-track.

## Downhole Tools & Accessories

### Fishing Tools

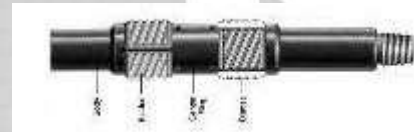


## Workover Downhole Tools & Accessories:

- **ST Pressure Testing Packer** is mainly used for the pressure test on the casing string and BOP stack.
- **SZZ Double Acting Casing Swage** is a tool for down-hole casing repair and redress, having double acting function of up and down impacting, rotating and extruding outwardly. It can work safely, conveniently, reliably, quickly and effectively.
- **TBQ Casing Compensator:** After the damaged casing is removed from the down-hole, this compensator can be tripped to connect new casing and old casing.
- **NG Mechanical Internal Cutter** is lowered to a given depth through the hole of the drill string to be cut. It is suitable for cutting different kinds of casing, oil tubing and drill pipe in oil and geological departments. If it is equipped with the pear, cutting and recovering can be completed at the same time.
- **Type AND-S Hydraulic Internal Cutter** is a cutting tool which is hydraulically actuated by circulating mud.
- **WD-J Mechanical External Cutter:** Connected to the washover pipe, WD-J cutter can cut off and recover the pipe quickly and effectively, and is suitable for externally cutting drill pipe, casing, tubing and the like.
- **WD-S Hydraulic External Cutter** is an external pipe-cutting tool which knives are hydraulically actuated by circulating drilling hydraulic load. It has advantages of simple operation and quick cutting.
- **MX Junk Mill:** We have three types of junk mills: flat-bottom (concave-bottom) type, guide type and cone type.

## Workover Downhole Tools & Accessories

### **Washover Cutters:**





## Drilling Downhole Tools & Accessories:

SURF WORLDWIDE can supply the below list of equipment in Standard sizes as well as customized sizes based on client request:

### **-Integral Spiral Blade Stabilizer**

- manufactured from AISI 4145H modified heat-treated alloy steel, designed to be one-piece construction for a wide variety of specifications and hole sizes. The stabilizers can be run either near bit or up in the drill string. Integral Straight Blade Stabilizer.

### **-Integral Straight Blade Stabilizer**

- Manufactured from high strength 4145H heat treated material and is One-piece rotating stabilizer can be run either near the bit or up in the drill string
- Applied in most rugged and abrasive drilling formation
- Various hardfacing is available i.e. Composite Tungsten Carbide Rod, Tungsten Carbide Inserts, Diamond Inserts, Geothermal.

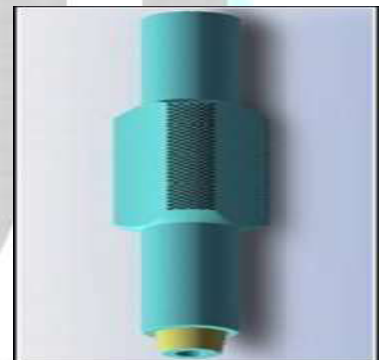
### **-Integral Sleeve Spiral Stabilizer**

- manufactured from high strength 4145H heat treated material
- Optimized engineering technology for easy-replacing on rig floor with ample tong space for connection recut
- Design is interchangeable with other similar brands of tools
- Various hardfacing is available i.e. Composite Tungsten Carbide Rod, Tungsten Carbide Inserts, Diamond Inserts, Geothermal.

### **-Spherical Stabilizer**

- manufactured from high strength 4145H heat treated material
- Small size design with lower resistance
- Various hardfacing is available i.e. Composite Tungsten Carbide Rod, Tungsten Carbide Inserts, Diamond Inserts, Geothermal.

## Drilling Downhole Tools & Accessories



## Drilling Downhole Tools & Accessories:

SURF WORLDWIDE can supply the below list of equipment in Standard sizes as well as customized sizes based on client request:

### **-Roller Reamer**

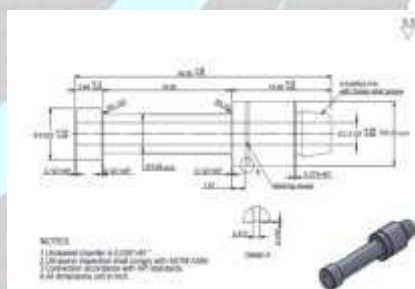
- manufactured from AISI 4145H modified heat-treated alloy steel, simply designed to maintain the necessary hole gauge for both straight drilling and directional drilling.
- Different prototypes of cutter ensure the tools to working in whatever soft, medium or most tough formation Non-magnetic Drilling Material



## Drilling Downhole Tools & Accessories

### **-Drill-stem Sub**

SURF WORLDWIDE can supply various subs for all drilling string connection size and performance changes. Under API Spec 7-1 standards, all subs are manufactured from either AISI 4145H quenched and tempered material or non-magnetic material.



### **III. Technical Support Services**

SURF WORLDWIDE has the ability to provide a high quality driven Technical Support to the Oil & Gas Industry through its technical team or by providing the technical expertise with a prolonged experience and specialized in the scope of requirement.

The Technical Support shall include the following Areas:

#### **1. Integrated Drilling/Project Management:**

This will include the entire/complete well planning & Operation approach starting from the well prognosis preparation till completing & testing the well. The services will include the following:

- Well Planning; which will include the budget, cost estimate, AFE & contracting preparation,
- Well Engineering; which shall include the well design (casing design, bit selection, mud program, cementing program, completion design & testing program),
- Drilling Operations management; which shall include the complete operation supervision and follow up drilling program execution with cost control.

The Project management target the following areas:

- Focusing with full understanding for the Project,
- Planning and execution of the Project in a Safe and Cost-effective manner,
- Achieving the project target in timely manner,
- Adapting the applicable latest Industry Standards with full adherence & compliance to the customer's regulations, HSE policies and code of ethics.
- Add new value to the Customer's based on win-win Business Model.

#### **2. Technical Support & Consultancy:**

SURF WORLDWIDE can provide the Technical Support & Consultancy to the customers vide the provision of high quality driven & intensive training to the Customer's staff on the latest applicable models, programs and projects by a highly skilled & experienced professionals in the Industry.

#### **3. Well Surveillance & Software:**

SURF WORLDWIDE can provide Well Surveillance & Software analysis to the mature fields with the aim of production management & optimization by applying the new models, ideas, techniques & integrity programs which will assure applying the optimum production model at less cost and will safeguard the well life.

This by using the top notch experienced consultant in the oil & gas industry who are fully aware of the latest technology and have wide experience in handling mature filed production.

This Technique will include the Pressure activated Sealant, Resin, Corrosion Logging, Leak Detection, well diagnostic and wellhead and micro-annulus repair.