

Oil Tool Glossary



WORKSTRINGS[®]
INTERNATIONAL

A SUPERIOR ENERGY SERVICES COMPANY



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Table of Contents

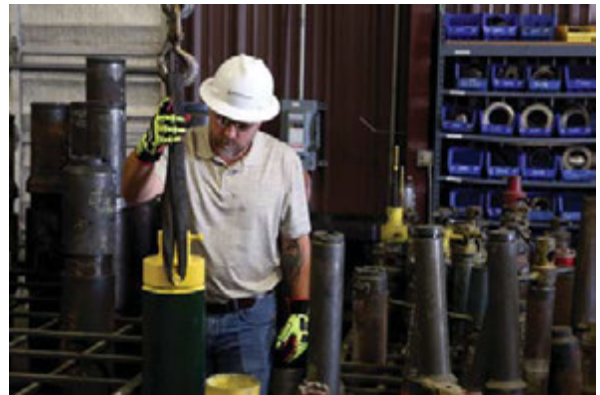
Our Mission -----	1
Our History -----	2
Adapters - Double Studded -----	3
Backsaver Package -----	4
Becket and Bails -----	5
BOP Rams -----	6
Cargo Baskets -----	7
Cement Diverter -----	8
Chicksan Iron -----	9
Ditch Magnet -----	10
Drifts -----	11
Drill Collar Clamps -----	12
Elevators - Bottle Neck -----	13
Elevators - Hydraulic -----	14
Elevators - Single Joint -----	15
Elevators - Slip Grip (Tubing) -----	16
Elevators - Square Shoulder -----	17
Inside Blowout Preventer (IBOP) -----	18
Lift Caps -----	19
Lower Kelly Valves -----	20
Mills -----	21
Mule Shoe -----	22
Pipe Jacks -----	23
Plug Valves -----	24
Rotary Slips -----	25
Safety Clamps -----	26
Safety Stands -----	27

Table of Contents

Spacer Flanges -----	28
Spools - Adapter Spools -----	29
Spools - Spacer Spools -----	30
Stabbing Guides -----	31
Subs - Bit Subs -----	32
Subs - Casing Crossovers -----	33
Subs - Crossover Subs -----	34
Subs - Float Subs -----	35
Subs - Pump-In Subs -----	36
Subs - Top Drive Saver Subs -----	37
Tongs - Hand Tongs -----	38
Tongs - Rotary Tongs -----	39
Tubulars - Drill Collars -----	40
Tubulars - Drill Pipe -----	41
Tubulars - Heavy Weight Drill Pipe -----	42
Tubulars - Landing String -----	43
Tubulars - Pony Collars -----	44
Tubulars - Pup Joints -----	45
Tubulars - SlipProof Drill Pipe -----	46
Tubulars - Tubing -----	47
Tubulars - User Friendly Collars -----	48
Wear Knot Drill Pipe -----	49

Our Mission

Workstrings International personnel are committed to providing our customers with the highest quality of downhole rental tubular and associated accessories, value-added engineering services and operational support while maintaining our industry's highest health, safety and environmental standards.



Our History

Workstrings International is the global leading oilfield equipment rental company providing quality primary Drill Strings in all API Connections and Specialty Connections, Tubing, Landing Strings, Completion Tubulars (CTM, GTM and TTM,) and handling accessories using in-house engineering and cutting edge technologies. Workstrings International is the only company in the world capable of providing the MaXit 7 5/8" Drill Pipe Casing Landing String.

Workstrings International was created following the 2011 merger of two established Superior Energy Services Companies, namely Premier Oilfield Rentals and Workstrings LLC. With roots firmly established on either side of the globe, Premier Oilfield Rentals founded in 1972 and Workstrings LLC in 1997, both shared the same focus on quality with commitment to customer satisfaction. In 2016 the Workstrings International entity celebrated its continued expansion with the integration of another long established sister company Sub Surface Tools, founded in 1970 and recognized as one of the foremost providers of rental equipment for drilling, completion and workover operations in the industry. The creation of the combined entity enables greater benefits to our customers globally with a diverse product inventory and unmatched technical engineering expertise.

Greg Elliott, founder of Workstrings LLC is President of the integrated Workstrings International company. Global Headquarters are located in Broussard, Louisiana, US, with Europe, Middle East, Africa (EMEA) corporate offices in Aberdeen, UK and both Engineering and Marketing Headquarters based in Houston, Texas, US.

A strategic network of branch locations around the globe ensures Workstrings International is capable of responding to customers anywhere in the world.

As the industry leader, Workstrings International continues to monitor the global market and implement operational strategies for continual growth and diversity. With the combination of premium rental assets, value-added engineering and operational support services, Workstrings International truly is the world's leading rental provider of high specification downhole tubulars and accessories.

Workstrings International, the leading rental provider of high specification downhole tubulars and accessories.

Adapters - Double Studded

The double studded adapter (DSA) is a piece of pressure control equipment with a through bore. The DSA has ring grooves and tap end studs on both sides. The two sides are different sizes. This piece of equipment is used to connect two differently sized connections and/or pressure ratings together.



Backsaver Package

The Backsaver package is a safety device that can be operated from a safe distance away using hydraulics and pneumatics to insert and remove slips removing the need for personnel to handle slips manually. This unit increases the life of the slips as well as keeping the rig floor safe by minimizing difficult handling procedures.



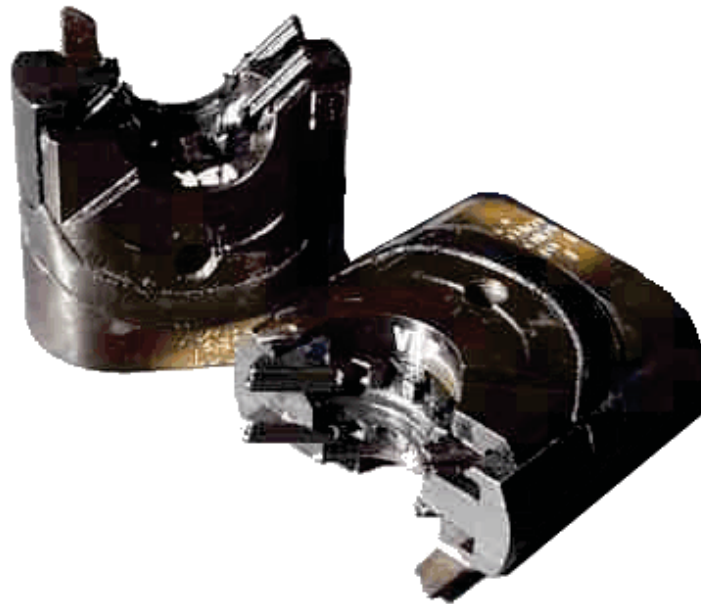
Becket and Bails

The becket and bails consist of two separate pieces of equipment. The becket is made to fit into a standard BN elevator. The bails are smaller than normal rig bails. In combination this equipment is used to carry a smaller elevator when using smaller drill pipe or tubing on the rig. The becket fits into the normal size BN elevator on the rig. The bails are then fitted with a smaller elevator that would not normally be able to be run with normal rig bails. Used mostly with cement stingers and small OD drill pipe.



BOP Rams

BOP rams are placed inside of the blowout preventers and are used in well control situations. Rams cut off flow from the well during a kick by sealing the annulus space. Blind rams are used when there is no pipe present in the BOP at the time of a well control situation and close the annulus off completely. Shear rams are used to cut through drill pipe that is in the BOP and are used as a last resort in a well control situation. There are other types of rams that are used such as dual rams which can close on two different strings in the BOP and variable bore rams (VBRs) which close on different sizes of drill pipe. BOP rams are specific to the type of BOP on the rig.



Cargo Baskets

Cargo baskets are used to transport and store equipment that is traveling to and from rig locations. Cargo baskets range in size and weight limits. Offshore cargo baskets are usually outfitted with slings that must be load tested and certified before being shipped to any offshore rig. Cargo baskets that are used for onshore operations usually have slots for forklifts for easy loading and unloading.



Cement Diverter

Cement Diverters are a segment of drill pipe that has the pin connection cut off at a 45 degree angle or tapered to a Bullnose. The modified end is then capped and small holes are drilled along the pipe body to allow for drilling cement and other fluids to be evenly dispersed.



Chicksan Iron

Chicksan Iron is used as flow line equipment on the rig. It is connected to the BOP or the cementing manifolds. The pieces are fitted with 1502 weco connections. These pieces of equipment are used for pressure control and have pressure ratings of up to 20,000 PSI. There are different pieces of equipment designated as chicksan iron such as straights, swivels, Tees, loops, etc.



Ditch Magnets

Ditch Magnets are used to filter out metal cuttings that are in the drilling mud. They are placed in the mud return system after the shale shakers. Metal shavings in the mud can be detrimental to drilling operations as they can stop up the bit nozzles causing a loss of circulation and a costly trip of drill pipe. They are useful during milling when there is a high volume of metal shavings that are being brought to surface in the drilling mud.



Drifts

Drifts are used to run through joints of drill pipe to make sure there are no blockages in the joint caused by raised metal, cement, or any other obstruction. Drifts are usually 2-4ft and made a 1/8 of an inch smaller than the ID of the tool joints. Drifts can be made from either Teflon or steel. Teflon drifts need to be run in pipe that has internal coating so it does not damage the coating.



Drill Collar Clamps

Drill collar clamps work in the same way that rotary slips work. The only difference is they are designed to grip drill collars in the slip recess. They fit inside of the bowl in the rotary table just like rotary slips.



Elevator - Bottle Neck

Bottle neck elevators attach to the traveling block by links and are used to lift drill pipe in and out of the hole. They are designed to fit the taper of the box tool joint.



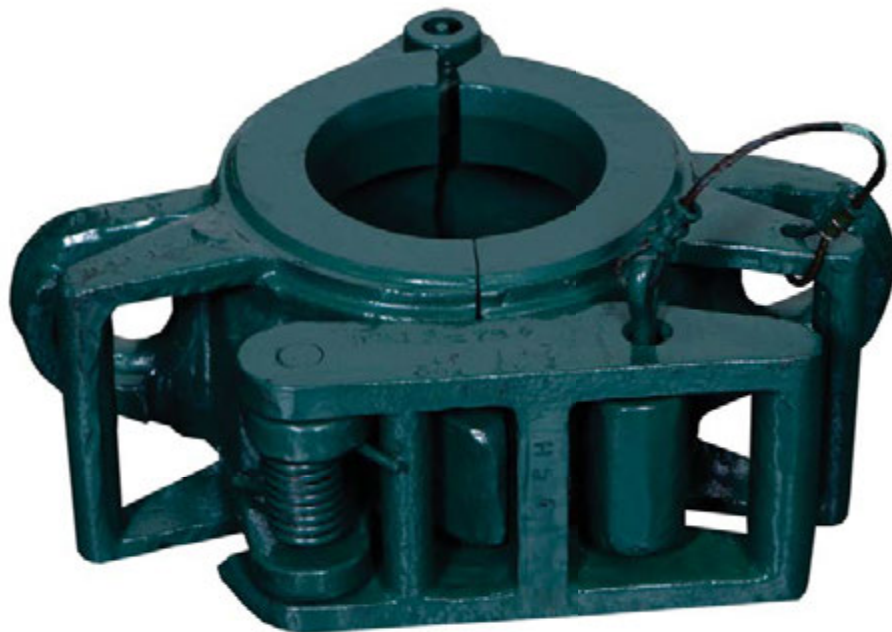
Elevator - Hydraulic

A hydraulically-controlled hinged mechanism that may be closed around drill pipe or other drillstring components to facilitate lowering into the wellbore or lifting out of the wellbore. In the closed position, the elevator arms are latched together to form a load-bearing ring around the component. A shoulder or taper on the component to be lifted is larger in size than the inside diameter of the closed elevator.



Elevator - Single Joint

Single joint elevators are used to lift single joints of drill pipe, heavy weight drill pipe, or drill collars. Single Joint Elevators are used when bringing joints of pipe up through the V door prior to being made into stands of pipe (stands are 2 or 3 joints of pipe screwed together).



Elevator - Slip Grip (Tubing)

Slip grip elevators use slips and dies inside the elevator to lift casing or tubing. It is used on tubing or casing with very minimal upsets. It does not rely on the upset to carry the weight of the drill string but rather uses friction between the inserts and pipe body to support the weight.



Elevator - Square Shoulder

Square shoulder elevators are used for lifting drill pipe or tubing and casing with drill collars in and out of the hole. Square shoulder elevators do not lift drill pipe by the box tool joint, instead it requires that a lift nubbin be attached to the drill pipe so the square shoulder of the elevator can lift the drill string.



Inside Blowout Preventor (IBOP)

The inside blowout preventer (IBOP) is a check valve used to control flow from the I.D. of the drill string during drilling operations. The IBOP is kept in the open position for easy stab into the drill pipe on the drilling rig floor. Once the valve is made up to the string the releasing tool is loosened and the dart in the valve engages to stop the flow. Once the well is back under control, the valve can then be removed from the string. It can also be left in the drill string with the releasing tool removed to allow only down flow through the string.



Lift Caps

Lift caps are made with either a box or pin connection. They are used to screw onto subs, valves, or other pieces on the rig floor for easy lifting. Lift caps are used as a convenience and safety aid to provide lifting points on heavy valves, subs and other pieces of equipment on the rig floor.



Lower Kelly Valves

The lower kelly valve is used as a drill string valve. It can control the flow of mud from the top drive by closing the valve and not allowing mud to flow on to the rig floor. The valve is also used to control the flow from the formation up the drill string. The valve is threaded with drill string connections which allow it to stab into the drill string. The drill string can then be stabbed into the valve and then opened to allow mud to be pumped down the hole.



Mills

Mills are drag bits generally intended to cut metallic objects or casing in the hole.



Mule Shoe

Mule shoes are used on the bottom of the cement stinger during cementing. They are usually around 10 feet long. The mule shoe is basically a piece of drill pipe cut at a 45 degree angle across the drill pipe tube on the box connection end. It can also be closed off on the 45 degree side with hole cut on the each side of the pipe body. This is usually called a cement diverter.



Pipe Jacks

Pipe jacks are used on the rig floor to position the pipe in the derrick while racking. The tool is used to move the pipe into a position when racking to save space. It is position on the rig floor and fits around the bottom of the tool joints and is pushed down to slide the pipe over.



Plug Valves

Plug valves are used in drilling or cementing applications. They have 1502 weco connections on each end and can be connected to the chucks on iron or cementing manifold. These valves are quarter turn and control the flow of fluid in the lines. They can come in a variety of pressure ratings but are usually built for 10,000 PSI or 15,000 PSI.



Rotary Slips

Rotary slips consist of inserts that fit around the drill pipe and grip it so it does not move down hole. The Rotary Slip is designed to sit inside the bowl of the rotary table and apply even pressure around the joint of drill pipe. This allows the operators to stab the next joint or stand of drill pipe into the box of the being held in place by the slips.



Safety Clamps

Safety clamps are used to wrap around slick or non-upset joints of pipe as a safety measure to prevent the pipe from falling down hole. They are mainly used with drill collars. Safety Clamps are designed so that if a joint of pipe starts to slip, the dies on the clamp will contact the top of the slips and prevent the joint from falling down hole.



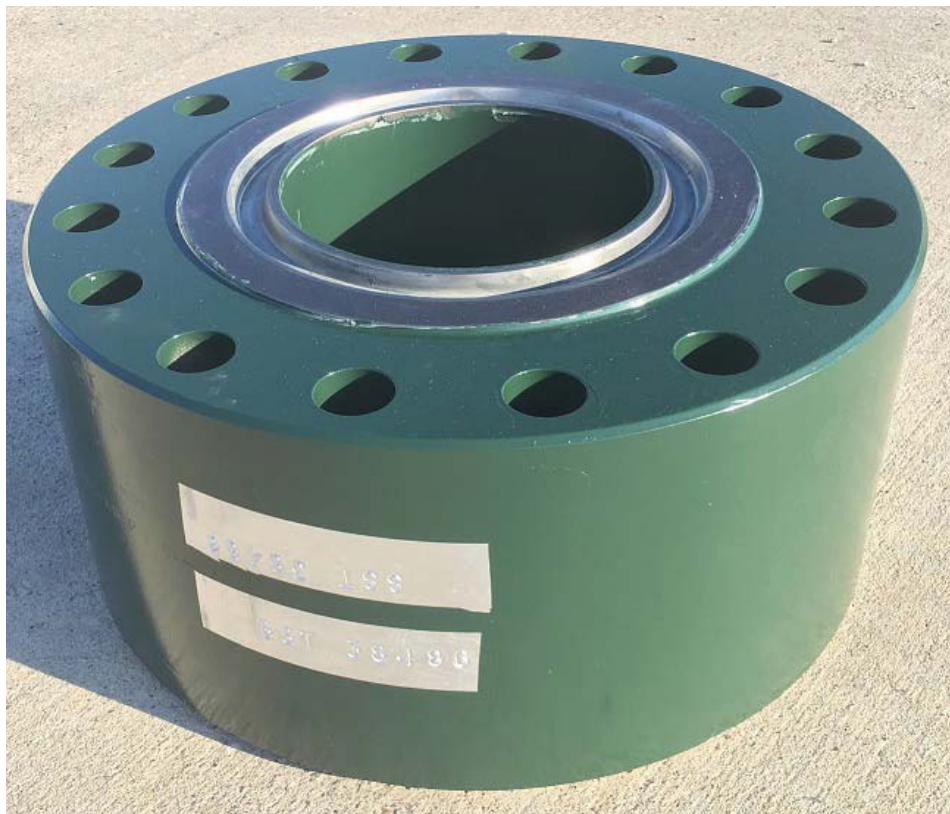
Safety Stands

A safety stand is used while making up any component to a drill string without having to rotate the whole string, but just the lower most piece that is being added.



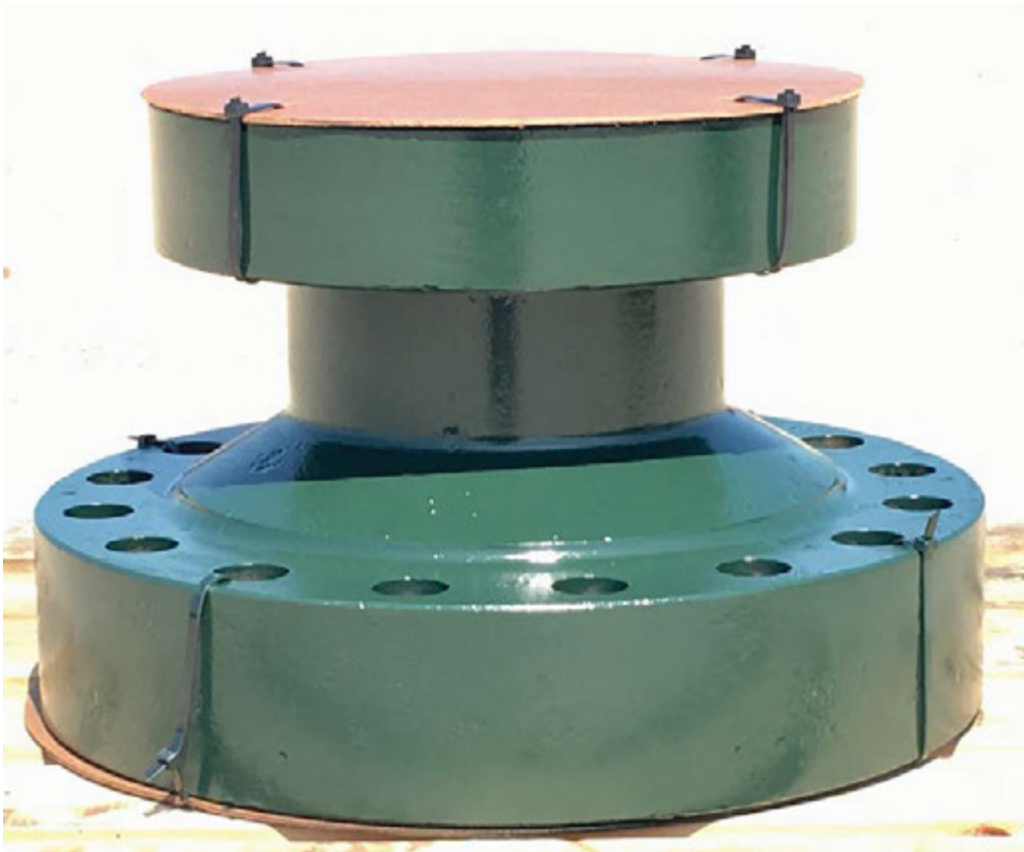
Spacer Flanges

The spacer flange is a piece of pressure control equipment. This is a flange made with ring grooves on each side and bolt holes throughout the piece. It is the same size on each end and is used primarily to add space in the BOP stack.



Spools - Adapter Spools

The adapter spool is a piece of pressure control equipment that has two different size flanges on each end. It can come in a variety of sizes and different lengths. It is used to connect different flanged or studded connections together.



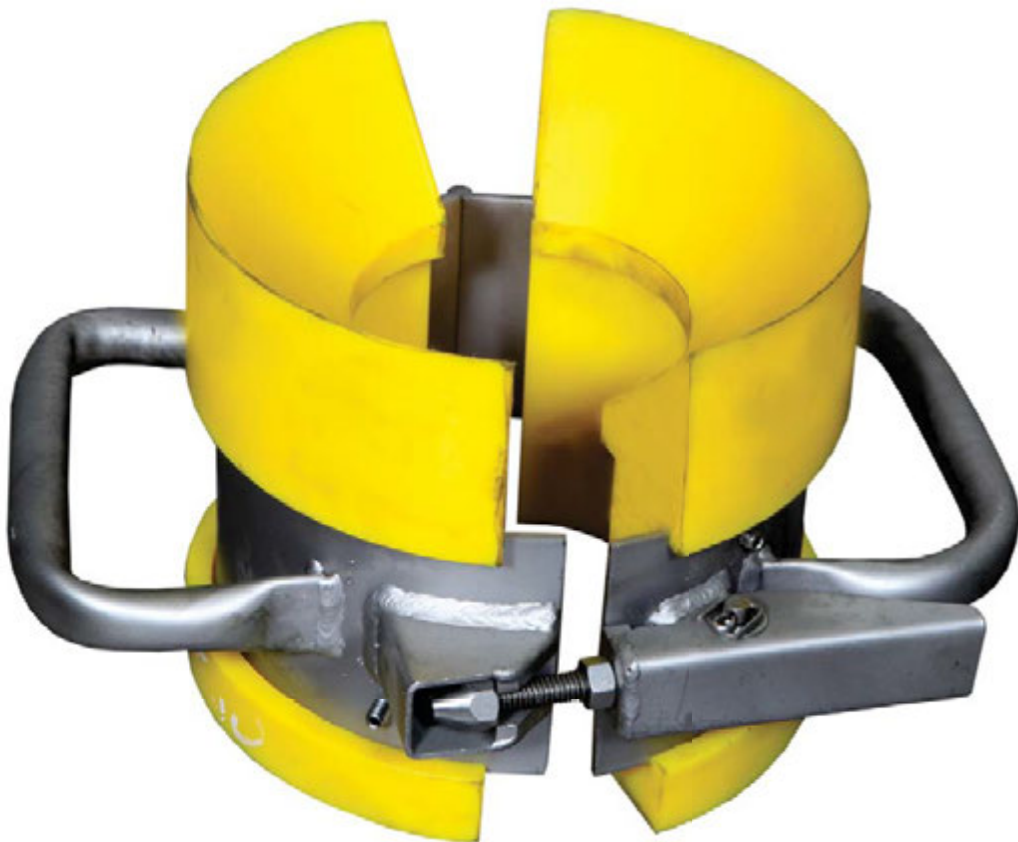
Spools - Spacer Spools

Spacer spools are used to space out between two of the same size flanges. Spacer spools have the same size API (American Petroleum Institute) flanges on each end, and come in a variety of lengths. Most of the large API flange spacer spools are used to space out the BOP below the rig floor. Smaller API flanges spacers can be used in many ways such as mud flow lines and cementing manifolds.



Stabbing Guides

Stabbing guides are used to protect the shoulders of the box end connection from damage when being made up. The stabbing guide sits on the shoulder of the box end while the drill pipe is stabbed into place and guided below the shoulder. This saves the shoulder from damages that increase the cost of repairs for our customers.



Subs - Bit Subs

Bit subs are used to connect the drill bit to the bottom hole assembly (BHA). They are usually a box by box connection (female x female). Drill bits have a pin connection which, depending on the size, has a different API regular connection. The bit sub is usually bored for a float valve which is used to control back flow up the drill string to the rig floor.



Subs - Casing Crossovers

Casing Crossovers connect casing to drill pipe. A Kelly valve or pump in sub can be attached for use in the casing string. This configuration allows the well to be shut in if needed during well control situations.



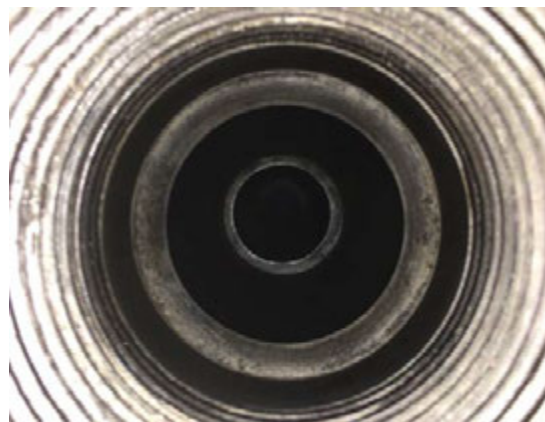
Subs - Crossover Subs

Crossover subs are used in the drill string to connect two different threads or connections. Often times in the drill string, the drill collars and drill pipe have different connections. A crossover sub can be used to connect those two items together or any other items with mismatched connections



Subs - Float Subs

Float subs are used to stop back flow from the formation up the drill string and onto the rig floor. Float subs are made like crossover subs but can have the same connections on each end. Float subs are bored on the box end so that a float valve can be placed in the inside diameter of the sub.



Subs - Pump-In Subs

Pump-in subs are used to allow fluid to be pumped into the drill string. Each pump-in sub is fitted with a 1502 weco connection on the box, pin, or side of the sub. The other ends of the subs are drill pipe connections.



Subs - Top Drive Saver Subs

Top drive subs are a pin by pin sub that is made up to the top drive. This saves on costly repair to the top drive by allowing multiple connections to be made up and broke out using the sub rather than the top drive itself.



Tongs - Hand Tongs

Hand tongs are used in the same way as the rotary tongs. They are used with tubing in which not a lot of torque is needed for make up or break out. This comes in a variety of sizes and can be made up to different size OD tool joints of tubing.



Tongs - Rotary Tongs

Rotary tongs are used on the rig floor to make up or break out joints of pipe. The rotary tongs are fitted with lug jaws that are for specific sizes of drill pipe tool joints. Lug jaws come in a variety of sizes. Tongs are used in pairs by connecting one to the cathead and rotating while the other tong is chained to the derrick in a fixed position.



Tubulars - Drill Collars

The primary function of the drill collar is to apply weight on the bit. Drill collars do not have welded tool joints (such as integral HWDP) but instead have pin and box connection threads machined directly into the body wall. Spiral grooves may be cut in drill collars to reduce the collar's tendency to differentially stick.



Tubulars - Drill Pipe

Drill pipe is the top component of any drill string that makes up the majority of a drill string's length. Its functions are to transmit torque and power from the top drive or rotary table to the bit. A drill pipe is described by its size, weight, grade, connection, upset, range and class. Range 2 drill pipe is typically 31.5 feet long. Range 3 drill pipe can be up to 45 feet long.



Tubulars - Heavy Weight Drill Pipe

Heavy weight drill pipe (HWDP) is similar in appearance to normal drill pipe with the exception of an upset area near the middle of the tube. Its wall thickness is 2-3 times that of normal weight drill pipe of the same size. The HWDP is used for additional weight and to help reduce fatigue in drill pipe by acting as a transition stiffness section between very stiff drill collars and very limber drill pipe. HWDP can be also used for running and landing casing.



Tubulars - Landing String

The landing string is a heavy wall drill pipe (0.500" wall or greater) and is used in many instances where regular drill pipe does not have sufficient tensile strength. Manufactured from the same grade of steel, the tensile rating directly correlates to the wall thickness. The most common application for landing string is to enable the lifting and lowering of long, heavy casing strings used in deepwater wells. Range 2 landing string is typically 31.5 feet long. Range 3 landing string can be up to 45 feet long.



Tubulars - Pony Collars

Pony Collars are joints of drill collars with a reduced length. Drill collars come in sections approximately 31.5 ft. long. Pony collars can range from 4 ft. – 20ft. They look the same as standard drill collars with spiral or slick outside diameters.



Tubulars - Pup Joints

Pup Joints are joints of tubing or drill pipe that are reduced in length. Pup Joints can range anywhere from 2 ft. up to 25 ft. They are very similar to standard joints of drill pipe and tubing except in most cases they have a reduced inside diameter matching that of the tool joint inside diameter.



Tubulars - SlipProof™ Drill Pipe

Slip Proof Drill Pipe offers a way reduce the effects of slip damage by adding a thicker wall cross section between the box and the upset of the drill pipe. This pipe is used mainly in landing strings and other heavy wall pipe for deep wells.



Tubulars - Tubing

Tubing is a wellbore tubular used to produce reservoir fluids. Production tubing is assembled with other completion components to make up the production string. The production tubing selected for any completion should be compatible with the wellbore geometry, reservoir production characteristics and the reservoir fluids.



Tubulars - User Friendly Collars

User Friendly Collars are drill collars that have a reduced OD section that allows the collars to be used with slips and elevators that match the rest of the drill string on the rig and can eliminate the need for lift subs, drill collar slips and safety clamps.



THE
uf **COLLAR**

Tubulars - WearKnot™ Drill Pipe

WearKnot drill pipe is drill pipe with a center wear pad that protects against OD wear on the drill pipe tube as well as stabilize the joint in the well bore. It reduces friction and drag forces in directional and horizontal wells and improves the tube section wear characteristics. Wear Knot allows more weight to be put on the bit to increase penetration rates.



