

PRODUCT BROCHURE



PRODUCT PORTFOLIO

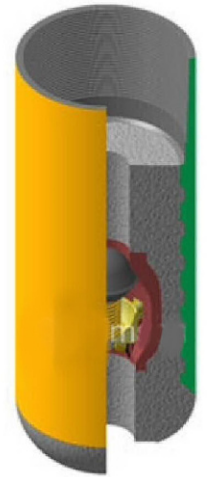
- Float Equipment
- Centralizers
- Cementing Plugs
- Stop Collar



FLOAT EQUIPMENT

poppet valve type float shoe is designed with a spring loaded valve and constructed from special high-strength material and PDC drillable. The Shoe's rounded nose assists the running of casing in horizontal or Deviated . When landing the casing, the drill fluid have no resistance to float shoes. The pressure of circulating mud make the valve head down a displacement, the disc of valve rod's end will fall off automatically; after stop pumping, the valve press the valve seat upwards under the action of spring, the float valve becomes one-way valve. So that can pump the drilling fluid and cement slurry into it from up to down, but the fluid in the casing or outside casing annulus can't be return to prevent from back flow.

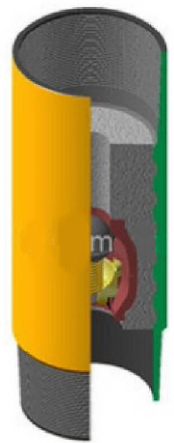
Nose area is designed with combination of both concrete and aluminium. Internal parts are made of high quality material to achieve high strength and PDC drillable. Cement float equipment are available in all grades of steel like J-55, K-55 L-80, N-80 C-90, T95, P-110, Q125 . Cement Float Shoe are available for casing Sizes 3 ½" to 30"



CEMENT FLOAT COLLAR

The using method is the same as float shoes except the lower end is pin Thread. It is connected with the casing. High strength concrete for maximum resistance to circulating erosion, as well as bump and backpressures. The usage of the float collar is to make the casing landing easily by reducing the loading.

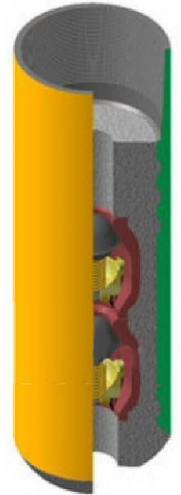
When landing the casing, make sure to prevent the drill fluid flow into the casing. After cementing, the float collar can prevent the cement slurry from returning to the casing. Internal parts are made of high-quality material to achieve high strength and PDC drillable. The Float Collars are also available in Non-Rotating Plate that is required with Non-Rotating Cementing Plugs. Cement Float Collars are available for casing sizes 3 ½" to 30" and the Shoes are available for casing sizes 3 ½" to 30"



DOUBLE VALVE FLOAT SHOE

The Double Valve Float Shoe has all of the features of the standard Cement Float Shoe and provides the added assurance of sealing when debris prevents the upper valve from closing. The nose area is designed with a combination of both concrete and aluminum.

Internal parts are made of high-quality material to achieve high strength and PDC drillable. Double Valve Float Shoe is also available in side-jet, down-jet port. Double Valve Float are available for casing Sizes 3 ½" to 30".

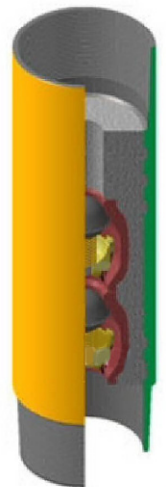


DOUBLE VALVE FLOAT COLLAR

The Double Valve Float Collar has all of the features of the standard Cement Float Collar and provides the added assurance of sealing when debris prevents the upper valve from closing.

Internal parts are made of high-quality material to achieve high strength and PDC drillable. The Double Valve Float Collar is also available in Non-Rotating Plate that is require with Non-Rotating Cementing Plugs.

Double Valve Float Collar is available for casing Sizes 3 ½" to 30"

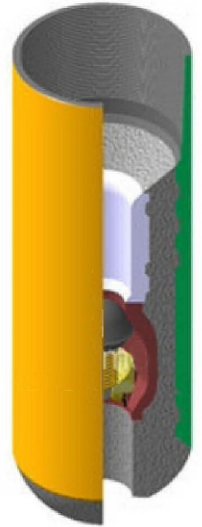


STAB-IN FLOAT SHOE

Stab-in float shoe have the features of high-temperature, good sealed, drill ability and connecting easily. It is used in general technical casing and oil- string casing, also used in deep well, extra deep well and special technology well. Stab in Float shoe is designed with a taper in the top of the concrete to guide the adapter on the bottom of the inner-string into the receiver incorporated in the float shoe or collar.

Stab-in float shoe belongs to inner string cementing range, it insists of shell, cement, self-motion grout valve, stab-in sub, O ring and stab-in pipe carrier. Its structure and operating principle are same to Casing float shoes, its feature: cementing in big diameter casing, through drill pipe inserts into the stab-in pipe carrier of stab-in shoe to achieve well cementing, this method can reduce wasting cement and avoid in using big diameter plugs in general cementing well, in order to achieve goal of economic and efficient. Internal parts are made of high quality material to achieve high strength and PDC drillable. The Stab-in Float Shoe are also available in Double Valve.

Stab-in Float Shoe are available for casing Sizes 9 5/8" to 30"



CEMENT GUIDE SHOE

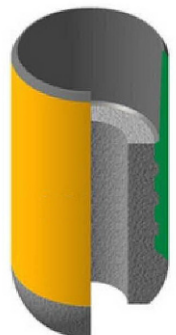
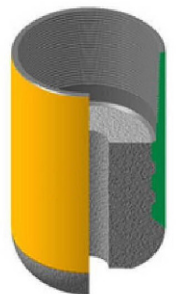
The rounded Cement nose with a generous radius which assures smooth running. Both have flat-finished concrete tops to provide strong surfaces for landing cement plugs .

The Cement Maximizes Shock Resistance and Minimizes drill-out time. This Guide Shoe may be used in combination with any type of collar. All cement guide shoes are PDC drillable.

SLIP ON TYPE GUIDE SHOE

Cement Guide Shoe is manufactured to match customer casing specification. Slip-ON type Guide Shoe O.D. matches with the casing O.D. and upper end is only beveled, not recessed for directly welding to the Casing pipe. All cement guide shoes are PDC drillable.

Slip-ON Guide Shoe are available for casing Sizes 3 1/2" to 30"

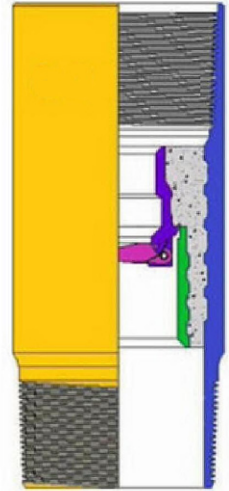


FLAPPER TYPE FLOAT COLLAR

Flapper-Type Float Collar is designed for use where spring-loaded float equipment is required. This equipment is particularly well-suited for holes where the hole is not filled with fluid prior to running casing and for use where circulation is not needed to wash away bridges or condition the hole prior to cementing.

The heavy-duty aluminium flapper valve is mounted on an aluminium disk and is seated firmly against a 1/4" inch rubber seat by the valve spring. The flapper valve and valve seat are designed to provide a firm seal when the valve is closed. The back-pressure flapper valve seals where circulation is stopped.

Flapper Type Float collar are available for casing Sizes 3 1/2" to 20"



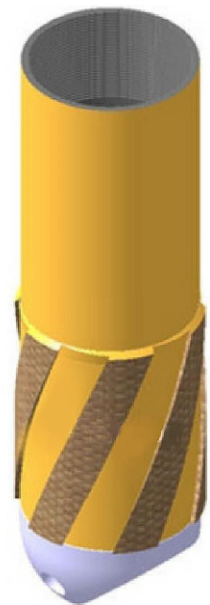
REAMER SHOE

Reamer Shoe is designed specifically to be installed on Casing or Liner and Screen where operators have concerns about potentially difficult wellbore conditions such as, swelling shale's, ledges and washed out areas of wellbore, post drilling and prior to running casing.

The aluminium eccentric guide nose climbs ledges and negotiates obstructions while the cutting structure reams out tight spots or obstruction in the wellbore. Compatible with all casing and liner hanger assemblies, our Reamer Shoe provides highly effective protection- against unexpected or anticipated casing and liner running problems, and has been specifically designed for potentially difficult wellbore conditions such as swelling shales, ledges and washed out areas of wellbore.

The high strength profiled alloy nose will anchor even in uncured cement to facilitate ease of drill out. The aluminium eccentric nose is easily drilled with both PDC and Rock bits. The chip breaker holes in the nose assembly are designed to create small aluminium chips to avoid "bird nesting" on the bit.

Benefits to customers include improved drillout times without compromising the reaming capabilities, a reduction in NPT and increased opportunities to reach TD. Reamer Shoes are available in Sizes From 2 7/8" to 20" or other special combinations as per req



CEMENTING RUBBER PLUGS

We have designed its plastic core and aluminium core cementing plug to complement its line of plugs to decrease drill out times. The cementing plug is used for separating the cement slurry from the mud. It can prevent the mud from blending into the cement slurry to influence the cementing quality.

Structure features: The top plug is solid. The bottom plug is hollow. They can all be drilled out with PDC bits. The material of the plug body is acrylonitrile-butadiene rubber. It is heat-resisting and tough. The core is made of a glass-filled high strength phenolic resin core.

The tapered base fits the cavity of the bottom plug for a positive seal. The fins and tail section provide positive wiping action. Fins also serve as a seal while cementing. A rubber diaphragm at the top of the plug ruptures after the plug is seated, allowing cement to flow through. The Cementing rubber plugs are available in sizes 4 1/2" to 20".



NON-ROTATING CEMENTING PLUG

The Non-Rotating Top & Bottom Cementing Plugs are designed to decrease drill out time. When the drilling fluid makes the bottom plug move into the end, the raised plum flower petal of the bottom plug's lower end engages with the hollow plum flower petal of the float collar's upper end.

At the same time, the pressure rises. When it reaches the definite pressure, the burst disk in the bottom plug crushes, the passageway opens, and the pump pressure descends. At this time, cementing can occur. After cementing, pumping into the top plug to clean the cement slurry on the inner wall, the raised plum flower petal of the top plug engages with the hollow plum flower petal of the bottom plug.

The Non-Rotating Cementing plugs are available in sizes 4 1/2" to 20".

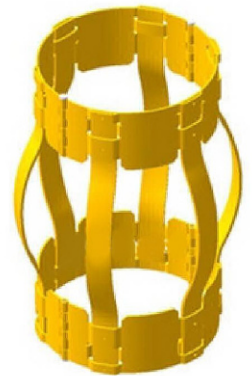


HINGED NON-WELD BOW CENTRALIZER

We offers a complete range of Non Weld Bow spring Centralizers Which are designed and manufactured as per API Spec 10D. Non Weld Bow centralizers are used to position the casing in the centre of the wellbore in vertical, deviated as well as horizontal wells.

The Non Weld Bow Centralizers combine the highest Non Weld Centralizer restoring force with the lowest starting force. High quality Bows made of special alloy steel with uniform hardness provide optimum performance. The bows with extended profile prevent them from hitting against casing collars. The bows are available in a range to accommodate any well profile. Hinge locking pins are of high strength steel for maximum structural robustness . Bows are then Flattened several times on a special machine to get permanent setting. Bows can be configured for any hole Size from choice of five standard bow heights for optimum starting and restoring forces.

Non Weld design features self-locking of lips for holding bows to end collars Centralizers undergo a special process of rust prevention before powder coating. The Non Weld Bow spring centralizers are available in sizes $\frac{1}{2}$ " to 24". Recommended for use with all standard casing grades



HINGED WELDED BOW CENTRALIZER

Hinged Welded bow spring centralizer is designed with very low starting and running force while giving the substantial restoring force. These centralizers are designed to exceed the performance requirements of API Specification 10D for both starting and restoring forces. High quality Bows made of special alloy steel with uniform hardness provide optimum performance.

The bows with extended profile prevent them from hitting against casing collars. The centralizers have spring Bows strongly welded onto the outside of the end collars under required temperature and condition with correct grade electrode. Design and processing features for hinges, hinge pins , bow springs are similar as non weld bow spring centralizers. Centralizers undergo a special process of rust prevention before powder coating.

The Hinged Welded Bow spring centralizers are available in sizes $\frac{1}{2}$ " to 20". Recommended for use with all standard casing grades.



SLIP ON WELDED BOW CENTRALIZER

Our welded slip On bow centralizer Operational and general design features are the same as Hinged Welded bow Centralizers. The centralizers have spring bows strongly welded onto the outside of the slip-on end collars under required temperature and condition with correct grade electrode. These centralizers are normally run between two stop collars or over a slip-on type stop collar to provide the casing / liner a smooth bearing surface. Centralizers undergo a special process of rust prevention before powder coating.

The Slip On Welded Bow spring centralizers are available in sizes $\frac{1}{2}$ " to 20". Recommended for use with all standard casing grades.



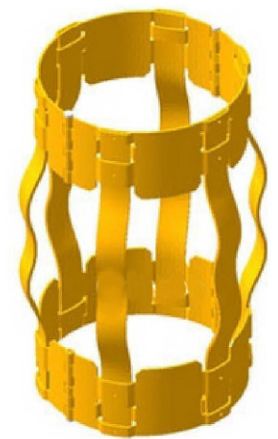
HINGED NON WELD SEMI RIGID BOW

This product features uniquely profiled bows that simultaneously provide the operator with those features found desirable in both spring bow and rigid centralizers. The result is a centralizer that far exceeds the performance standards set forth in API Specification 10D.

The spring characteristics of its double crested profile permit compression to facilitate movement through tight spots and dog legs. High quality Bows made of special alloy steel with uniform hardness provide optimum performance. The bows with extended profile prevent them from hitting against casing collars. The bows are available in a range to accommodate any well profile.

Semi Rigid Bow Centralizers undergo a special process of rust prevention before powder coating.

Hinged Non Weld Semi Rigid Bow centralizers are available in sizes $\frac{1}{2}$ " to 20". Recommended for use with all standard casing grades.



HINGED WELDED SEMI RIGID BOW CENTRALIZER

Hinged Welded Semi Rigid Bow Centralizers has the ability to withstand high lateral load encountered. The spring characteristics of its double crested profile permit compression to facilitate movement through tight spots and dog legs. . The centralizers have Semi Rigid Bows strongly welded onto the outside of the end collars under required temperature and condition with correct grade electrode. The End Collars are designed with a reinforcing Rib stamped into the End Collar to give maximum structural toughness. Semi Rigid Bow Centralizers undergo a special process of rust prevention before powder coating.

Hinged Welded Semi Rigid Bow centralizers are available in sizes $4\frac{1}{2}$ " to 20". Recommended for use with all standard casing grades.



HINGED NON WELD TURBOLIZER

Non Weld Turbolizer with metal fins installed on the bows to help induce turbulence in the cement slurry during pumping operations. Like the spring bows, the fins are made of heat-treated alloy steel. This makes them flexible, which minimizes damage while moving down hole. Meet API Specification 10-D requirements for Starting, Running and Restoring Force in most casing and hole combinations. The fins direction can be made in both right and left hand versions to assist in the uniform displacement of the cement. Collars are of widened design for greater frame strength and to prevent bows hitting casing. Integral hinges are designed to wrap to the inside and are with eight sections and seven shear points for minimum disorientation even under severe stress.

Turbolizers are available in the same sizes and bow heights as centralizers. Turbolizer undergo a special process of rust prevention before powder coating. Hinged Non Welded turbolizer are available in sizes $4\frac{1}{2}$ " to 20".

Recommended for use with all standard casing grades



HINGED WELDED TURBOLIZER

Welded Bow-Turbolizer is built with “turbolating” Fins added to the bow springs. the fins are made of heat-treated alloy steel. This makes them flexible, which minimizes damage while moving down hole. The fins direction can be made in both right and left hand versions to assist in the uniform displacement of the cement. . The turbolizer have Bows strongly welded onto the outside of the end collars under required temperature and condition with correct grade electrode. Welded Turbolizer is ideal for deviated and horizontal well.

Welded Turbolizers are available in the same sizes and bow heights as centralizers. Turbolizer undergo a special process of rust prevention before powder coating.

Hinged Welded turbolizer are available in sizes $\frac{4}{2}$ " to 20". Recommended for use with all standard casing grades



SLIP ON WELDED TURBOLIZER

Slip On welded Turbolizer Operational and general design features are the same as Hinged Welded Turbolizer. The Turbolizer have bows strongly welded onto the outside of the slip-on end collars under required temperature and condition with correct grade electrode.. Slip On Welded Turbolizers are available in the same sizes and bow heights as centralizers. Turbolizer undergo a special process of rust prevention before powder coating.

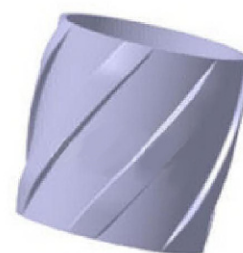
Slip On Welded turbolizer are available in sizes $\frac{4}{2}$ " to 20". Recommended for use with all standard casing grades.



ALUMINIUM SPIRAL BLADE SOLID RIGID CENTRALIZER

Spiral Blade Solid Rigid Centralizer are designed to meet the needs for better cementing in high deviated and horizontal well. The smooth spiral 360° overlap solid vane design of centralizers provide wall Bore contact will not damage wellhead equipment ,has high impact and shock resistance comand fluid swirl. The 30° slope of the vane ends reduce drag and aid the casing in reaching TD. Solid rigid centralizers are cast of a high grade aluminum alloy with one- piece construction. They give optimum flow area in highly deviated and horizontal wells .Spiral Rigid Centralizers increases induced swirl which increases the displacement efficiency. The solid cast aluminium centralizers bine with high tensile and yield strengths as well as corrosion resistance.

Casting not only makes a well Designed touch tool , but reduces manufacturing costs. The Spiral solid Rigid Centralizer is an aluminium / Zinc centralizer with similar design features of the steel solid Rigid Centralizer. The spiral blade Solid rigid centralizer are available in R/H and L/H side. Spiral blade Solid Rigid Centralizer are available for casing Sizes 4 ½" to 20"



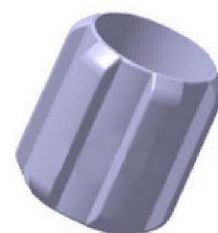
R/H Spiral Blade



L/H Spiral Blade

STRAIGHT BLADE RIGID CENTRALIZER

Applicable for horizontal and highly deviated well designs, the rigid centralizers center casing in previous run casings and can assist in aligning casings through well heads near surface. The straight blade centralizer can be attached to the casing with set screws located between each vane, preventing casing rotation or reciprocation during cementing operations. If the casing will be rotated or reciprocated during cementing operations, the Straight blade centralizer can float on the casing joint between the stop rings. A flexible ceramic coating can be applied to the entire turbulator to reduce friction. Crimson straight blade centralizers are wellhead friendly and have high impact with shock resistance, along with optimum tensile and yield strength.



STEEL SPIRAL BLADE SOLID RIGID CENTRALIZER

It makes the casing centralized in wellbore and improves cementing quality. Rigid Centralizers are an integral part of the cementing process. They provide the mechanism that centres the casing in the hole and allows uniform cement flow around the casing to help protect it at all points.

Several styles of centralizers are available for matching different well specifications and hole sizes, including turbulence generating designs that help clean the annulus and distribute the cement more evenly and uniformly. All models offer ample clearance for fluid passage and are extra effective in centering the casing, even in highly deviated holes and improve cement flow by reducing the effects of channeling. Spiral blades increase annular turbulence. With the shape of stream-lined, it enables casing run easily in wellbore. Both straight blade and spiral blade are available. The material can be cast steel or cast aluminium.

Steel Solid Rigid Centralizer are available for casing Sizes 4 ½" to 20"



SLIP ON WELDED SPIROLIZER

Slip On Welded Spirolizer are specially designed for centralization of casing pipe in highly deviated and horizontal wells. The steel construction ensures extra strength and superior toughness. The design of the blades provide minimum friction reducing drag forces while running in the pipe. The Spirolizer have Spiral Vanes strongly welded onto the outside of the slip-on end collars under required temperature and condition with correct grade electrode. Vanes can be selected to meet any hole-diameter from a choice of seven boat profile depths.

The Spirolizers are available in R/H , L/H Side Spiral Vanes and Straight Vanes which resist high side loads. Slip On Welded Spirolizer is shipped in assembled condition only.



HEAVY DUTY SLIP ON WELDED SPIROLIZER

Heavy duty Slip On Spirolizers are specially designed for heavy load in highly deviated horizontal wells and for use with liner hangers. Steel construction provides superior toughness over other materials. One piece roll formed collars & spirally oriented Vanes strongly welded under required temperature and condition with correct grade electrode.

The Spirolizers are available in R/H, L/H Side Spiral Vanes and Straight Vanes which resist high side loads. Heavy Duty Welded Spirolizer are provided for direct installation on the pipe by slipping on and can be provided with compatible Stop Collars beveled from one side positioned by set screw. Heavy Duty Welded Spirolizer is shipped in assembled condition only. The Spirolizer undergo a special process of rust prevention before powder coating.

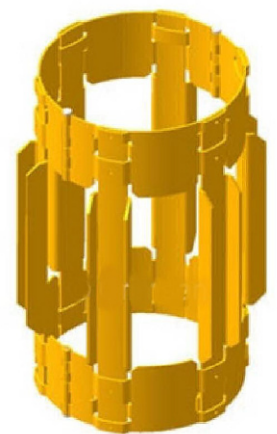
The Heavy Duty Welded Spirolizer are available in sizes $3\frac{1}{2}$ " to $13\frac{3}{8}$ ".



HINGED NON WELD POSITIVE CENTRALIZER

Non weld Positive Centralizer are Provided with rigid bows of U - Profile design instead of spring bows to ensure maximum fluid passage and reduces frictional drag force in deviated hole conditions. They provide almost 100% standoff when run inside a cased hole. The flat U profile is fitted in self locking retaining lips for firm and positive hold. Bows can be selected to meet any hole Size from a choice of ten standard U profile depths and bow heights. Positive Centralizers undergo a special process of rust prevention before powder coating.

Hinged Non Weld Positive Centralizer are available in sizes $4\frac{1}{2}$ " to 20". Recommended for use with all standard casing grades



HINGED WELDED POSITIVE CENTRALIZER

Hinged welded Positive centralizer are designed to provide positive standoff and centering. This product can be used in casing or open-hole applications. Steel construction provides superior toughness over other materials. The centralizers have Positive Bows strongly welded onto the outside of the end collars under required temperature and condition with correct grade electrode.

This type of centralizer significantly reduces frictional drag while being used in deviated holes. Provide almost 100% stand off when run inside a cased hole. Positive Centralizers undergo a special process of rust prevention before powder coating.

Hinged Welded Positive Centralizer are available in sizes $\frac{1}{2}$ " to 20". Recommended for use with all standard casing grades



SLIP ON WELDED POSITIVE CENTRALIZER

Slip-On Welded Positive Bow centralizer Operational and general design features are the same as Hinged Welded Positive bow Centralizers. This centralizer are manufactured With Solid End rings that can be easily slipped on the casing OD during Installation. The centralizers have Positive bows strongly welded onto the outside of the slip-on end collars under required temperature and condition with correct grade electrode. These are generally shipped in assembled condition only .This Centralizers undergos a special process of rust prevention before powder coating.

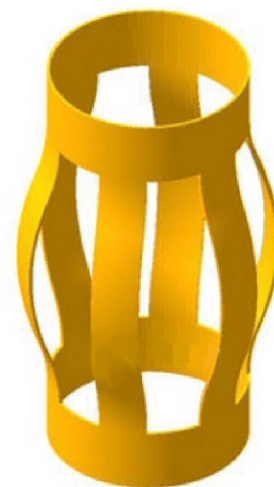
The Slip-On Welded Positive Bow centralizers are available in sizes $\frac{1}{2}$ " to 20".



SINGLE PIECE CENTRALIZER

The latest centralisers are manufactured from a single piece of heat-treated steel giving a hardened and tempered surface that results in greatly reduced torque and drag losses. These centralisers offer high fatigue strength for axial forces and radial side loads on bows during tubular rotation. Our specially designed Single Piece Centralizer, eliminate the risk of loose part or welding failure as it is all made from one single piece using state of the art manufacturing process and material. Run in close tolerance applications mainly on liners.

The Single piece centralizer can be installed with 2 stop rings, 1 internal stop ring or casing couplings. The blades, top and bottoms rings are made of one piece to ensure the centralizer s integrity during rig operations. These are generally shipped in assembled condition only . This Centralizers undergos a special process of rust prevention before powder coating. The Single piece centralizers are available in sizes $4\frac{1}{2}$ " to 20" . (Any special sizes or combination can available on request).

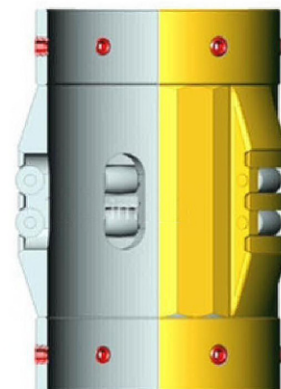


CASING ROLLER CENTRALIZER

Casing roller centralizer consists of rigid body, on which machined Straight Blades and spiral blades. There are modified alloy steel, fully heat treated rollers fixed on every Straight or spiral blades. Because of rigid body and rolling friction between the rollers and inside of well or casing, the capability of the roller Centralizer is better than others of all. Roller centralizers are mainly used for big high Roller, high deviated wells and horizontal wells, to centre casings.

Roller centralizers can also remove wellbore cake and improve mud replacement efficiency etc. Rollers provide superior wear resistance and have been proven to remain functional throughout the life of the well and can aid in casing/tubing retrieval. Precision-machined inside diameter fits over the casing through the complete API tolerance range, providing excellent rotational performance in mud.

Casing Roller Centralizer are available in sizes $4\frac{1}{2}$ " to 20".



HINGED SPIRAL NAIL STOP COLLARS

Spiral Nail Stop Collar uses two spiral locking pins which when driven in firmly lock the collar into position around the casing. This Stop Collar can be used in both upset and non-upset casing Provides maximum annular clearance.

They can be latched on to the casing pipe without having to be slipped on at the end of the casing pipe, thus allowing Quick and easy installation. These Stop Collar undergo a special process of rust prevention before Painting. The Spiral Nail Stop Collar are available in sizes 4 ½" to 20".



HINGED BOLTED STOP COLLAR

Hinged bolted Stop Collar is Designed to latch on the casing pipe without having to be slipped on at the end of the casing pipe allowing quick and easy installation. The friction grip type is hinged and incorporates a nut/bolt assembly which, when tightened, draws the stop collar into a friction grip around the circumference of the pipe. A valued point is that the stop collar should always have a stronger holding force than starting force.

These Stop Collar undergo a special process of rust prevention before Painting. The Hinged Bolted Stop Collar are available in sizes 4 ½" to 20" .



SLIP ON SET SCREW STOP COLLAR

Slip on set-screw type is a one-piece stop collar. We also offers a premium one-piece stop-collar, with set screws for superior holding capability. The outside ends of these collar are generally tapered to a degree which helps to hold the centralizer and avoid the ends to hit the Bows / Vanes when the centralizers are placed over them. These Stop Collar undergo a special process of rust prevention before Painting. The Slip on Set Screw Stop Collar are available in sizes 2 7/8" to 20" .



HINGED WITH SET SCREW STOP COLLAR

Hinged Set Screw Stop Collars are hinged at two places 180 degrees apart. The gripping force is applied by a single row of set screws holding the collar to the casing Firmly.

This Stop Collar can be latched on to the casing pipe without having to be slipped on at the end of the casing pipe, thus allowing easy installation. These Stop Collar undergo a special process of rust prevention before Painting.

The Hinged set screw stop collar are available in sizes 4 1/2" to 20".



CABLE WALL CLEANER

Cable Wall Cleaner designed to clean the wellbore as the casing is reciprocated or rotated. The Cleaner aid in the removal of excess filter cake, gelled mud, and bit cuttings from the wellbore, and also serve as reinforcement in the cement column.

The Cable Wall Cleaner is locked onto the casing; therefore, stop collars are not required. The Bolt holds the Wipers in position and eliminates the need for stop collar. The positive holding action does not damage the casing.

The Cable wall cleaner are available in sizes 4 ½" to 20" .



SLIP-ON WELDED CEMENT BASKET

Cement Basket is an effective aid in retaining and supporting the cement where weak formations and stage cementing is encountered. It is designed with Flexible Bow Springs, heat-treated under controlled conditions for maximum strength and uniformity , are welded to slip-on collars and overlapping metal fins for flexibility and strength to support long columns of cement during primary cementing operations.

Not infected by the temperature and causticity liquid and can be used with relevant small casing. This type of cement basket can be rotated and reciprocated. The cement basket also available in Hinged type welded cement Basket.

The Cement Basket are available in sizes 4 ½" to 20" .



HAMMER UNIONS

Manufactures a full line of high Quality Hammer Unions. Hammer Unions are designed as heavy duty, high pressure flow line connectors. They come in many sizes, shapes and pressure ratings, and when used correctly they are a safe and reliable means of transporting fluid. They are commonly found in chemical plants, on marine dredging vessels, in strip mines and in the oil industry.

Hammer unions are available in a wide range of sizes and in working pressures to 15,000 psi. Hammer Unions are high-pressure threaded or welded connections with two halves a threaded female half and a wing male half with swivel nut that fit together and seal upon turning and then hammering the nut half together with the threaded half. all hammer unions provide pressure- tight, positive sealing and are available for standard service and sour gas models. Hammer unions for sour gas service are specially heat-treated for controlled hardness and utilize fluorocarbon elastomer seal rings.

Hammer Unions are available in sizes 1" to 12" .



TUBULATOR

Turbulator is designed and built to help operators achieve the primary cement job, necessary to isolate the zones of interest, and to obtain a cement seal in the overlap of liner installation.

The spiral-vane turbulator is a slip-on rigid centralizer. The turbulator ID is slightly larger than the casing OD. Curved vanes welded to the turbulator's inner mandrel provide casing centralization during cementing operations. If the casing will be rotated or reciprocated during cementing operations, the spiral-vane turbulator should be installed between two stop rings or between a casing collar and stop ring. If casing will not be rotated or reciprocated, the turbulator can be attached to the casing with set screws.

A flexible ceramic coating can be applied to the turbulator to reduce friction. A brass overlay can also be added to the contact area of the turbulator vane if the casing will be run through polished bore sealing areas. The turbulator is available for 2-7/8" to 4" tubing sizes and 4-1/2" to 24" casing sizes. The standard turbulator length is 5", but other lengths can be manufactured at the customer's request.



CROSSOVER SUB



Our crossover subs have two main applications. They can be used to cross over from one connection size to another, or as a disposable part used to prolong the life of more expensive drill stem components. We manufacture our Subs utilizing 4140 Q&T Alloy Bar; our Heat Treatment allows us to maintain a 28-32 Rc Hardness. The threaded connections are also protected by a durable phosphate surface coating that helps reduce galling during the initial make-up. All of our crossover subs are manufactured to conform to API specifications.

These offered products are used to crossover from one connection size to another. The offered products are provided with BOX x PIN, BOX x BOX or PIN x PIN connections.

API Reg PIN x API Reg BOX


- 2 3/8" PIN X 2 3/8" BOX (Overall Length 230mm)
- 2 3/8" PIN X 2 3/8" BOX (Overall Length 430mm)
- 2 3/8" PIN X 3 1/2" BOX (Overall Length 260mm)
- 2 7/8" PIN X 2 3/8" BOX (Overall Length 230mm)
- 3 1/2" PIN X 2 3/8" BOX (Overall Length 260mm)
- 3 1/2" PIN X 2 7/8" BOX (Overall Length 305mm)
- 3 1/2" PIN X 3 1/2" BOX (Overall Length 280mm)
- 3 1/2" PIN X 3 1/2" BOX (Overall Length 540mm)
- 3 1/2" PIN X 4 1/2" BOX (Overall Length 300mm)
- 4 1/2" PIN X 3 1/2" BOX (Overall Length 300mm)
- 4 1/2" PIN X 4 1/2" BOX (Overall Length 300mm)
- 6 5/8" PIN X 4 1/2" BOX (Overall Length 300mm)
- 2 7/8" PIN X Short thread 2 3/8" BOX (Overall Length 230mm)
- 4 1/2" BOX x 4 1/2" BOX (Overall Length 230mm)
- 6 5/8" BOX x 3 1/2" BOX (Overall Length 300mm)
- 6 5/8" BOX x 4 1/2" BOX (Overall Length 300mm)
- 6 5/8" BOX x 6 5/8" BOX (Overall Length 300mm)

CROSSOVER SUB

API Reg PIN x API Reg PIN

- 2 3/8" PIN X 2 3/8" PIN (Overall Length 280mm)
- 2 3/8" PIN X 2 3/8" PIN (Overall Length 430mm)
- 2 3/8" PIN X 3 1/2" PIN (Overall Length 280mm)
- 2 3/8" PIN X 3 1/2" PIN (Overall Length 430mm)
- 3 1/2" PIN X 3 1/2" PIN (Overall Length 280mm)
- 3 1/2" PIN X 3 1/2" PIN (Overall Length 430mm)
- 3 1/2" PIN X 2 3/8" PIN (Overall Length 300mm)
- 4 1/2" PIN X 4 1/2" PIN (Overall Length 280mm)

API Reg BOX x API Reg BOX

- 2 3/8" BOX x 2 3/8" BOX (Overall Length 280mm)
 - 2 3/8" BOX x 2 7/8" BOX (Overall Length 240mm)
 - 2 7/8" BOX x 3 1/2" BOX (Overall Length 240mm)
 - 3 1/2" BOX x 2 3/8" BOX (Overall Length 260mm)
 - 3 1/2" BOX x 3 1/2" BOX (Overall Length 280mm)
 - 3 1/2" BOX x 4 1/2" BOX (Overall Length 300mm)
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PERFORMANCE IS EVERYTHING

