



WellMax Oilfield Technologies Pvt Ltd

**CEMENTING TOOLS BROCHURE**

## OUR PRODUCTS

- ✦ **Cement Head**
- ✦ **Circulating Sub**
- ✦ **Drilling Liner Hanger**
- ✦ **Casing Packer**
- ✦ **Stage Collar**
- ✦ **Float Collar & Float Shoes**
- ✦ **Guide Shoes**
- ✦ **Centralizers**
- ✦ **Stop Collars**
- ✦ **Cement Plug**
- ✦ **Cement Basket**
- ✦ **Spiral Turbulence Locator**

## CASING CENTRALIZERS

Casing centralizers are an essential auxiliary tools in the process of running casing in oil & gas exploration, it plays an important role to cementing quality, ensure the safety in the production, and prolong the life of the well.

### Features:

- ✦ **Spring Centralizers**
- ✦ **Semi-rigid Centralizers**
- ✦ **Rigid Centralizers**
- ✦ **Roller Centralizers**
- ✦ **Composite Centralizers**
- ✦ **Hydraulic Centralizers**

## BOW SPRING CENTRALIZERS

Hinged bow spring centralizers are a traditional and economic centralizers. This kind of centralizers are used in general vertical or slightly deviated wells.



## SINGLE PIECE CENTRALIZERS

API single piece centralizer performs satisfactorily in open hole as well as cased hole. These high quality products, developed to meet and exceed API 10D specifications for using in highly demanding downhole conditions. Single piece centralizer combines the highest restoring force with zero starting and running force. The single piece centralizer is used to position the casing in the center of the well bore in vertical, deviated and horizontal wells.

The single piece centralizers are available in sizes 4-1/2 " to 20". Any special sizes or combination can be available on requirement.



## TURBULENT SPRING CENTRALIZERS

- ✦ With the advances of spring centralizer
- ✦ The spinning disk on the centralizer string work closely with casing to form a whirl channel to improve the efficiency of cement slurry displacement



## OFFSET BOW SPRING CENTRALIZERS

The offset bow is a robust, ultra-high-strength, one-piece bow spring centralizer with no weak points, such as hinges or mechanical interlocks and with the flexibility to absorb both axial and radial loading. The offset bow offers significant reduction in initial insertion forces as well as substantially reduces running forces through the previous set casing. Once through this compressed stage the unit will revert to gauge, maximizing stand-off with zero drag.



## SOLID RIGID CENTRALIZERS

Spiral vane steel solid rigid centralizers are developed to meet the need for better cementing in highly deviated and horizontal well. Spiral vane steel solid rigid centralizers are designed to provide optimum flow area. The 360 degrees overlapping solid vane provides maximum wall contact and fluid swirl. Reduced flow area between the spiral blades produces a vortex motion of the fluids for more fluid velocity with direction. The 30-degree slope of the vane end reduces drag and aids the casing in reaching TD.



## ROLLER CENTRALIZERS

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. Roller Centralizers provide superior wear resistance and have been proven to remain functional throughout the life of the well and can aid in casing/tubing retrieval.

Roller Centralizers are available in sizes 4-1/2" to 20". Any special sizes are available on request.





## COMPOSITE CENTRALIZERS

The Composite centralizers are used during running and cementing operations to centralizer casing. Made of advanced composite, the one piece centralizer has a low coefficient of friction, it is heat resistant which is highly durable and greatly enhances cementing operations.

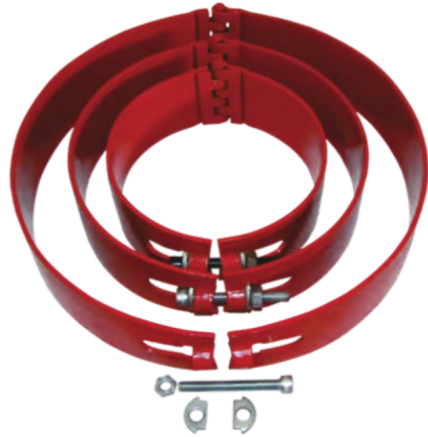


## PRESET FORCE CENTRALIZERS

- ✦ With the advantages of rigid and semi-rigid centralizer, suitable for irregular well bore.
- ✦ The centralizer strip can be deformed when passing through the string, it is easy to let casing go through.
- ✦ The force of centralizer strip can be preset according to the requirement of client.



## HINGED BOLT TYPE STOP COLLAR



Hinged Stop Collars secure placement and limits travel on attachments to casing string. The stop collar uses a single draw bolt tightening mechanism with “hardened inserts” to grip the casing once tightened. Hinged 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. On locking it can be tightened for a holding force upto 1000% of the centralizer starting force as per API 10D.

The locking mechanism is at 180 degrees of the hinge. This design does not make any marks or indentations on the casing. This type of stop collars are available in 4-1/2” through 20”.

## SLIP ON STOP COLLAR

Slip On set screw stop collars are one piece stop collar. The outside ends of these heavy duty stop collars are generally tapered to a degree which helps to hold the casing centralizer and avoid the ends to hit the bows/vanes when the casing centralizers are placed over them. This kind of set screw stop collars are recommended for small hole operation. It is used when holding force requirement is very high.

The Slip On Set Screw Stop Collars are available in sizes 4-1/2” to 20”.



## RECIPROCATING WELL BORE WIPERS

These wipers remove excess wall cake to improve cement-to-formation bonding by producing a wiping action during running and reciprocating. A continuous, interlocking and overlapping loop of tempered steel wire cable is laced into the hinged collars. A bolt holds the wipers in position and eliminates the need for stop collars. A hinged version is also available.



## CEMENT BASKET

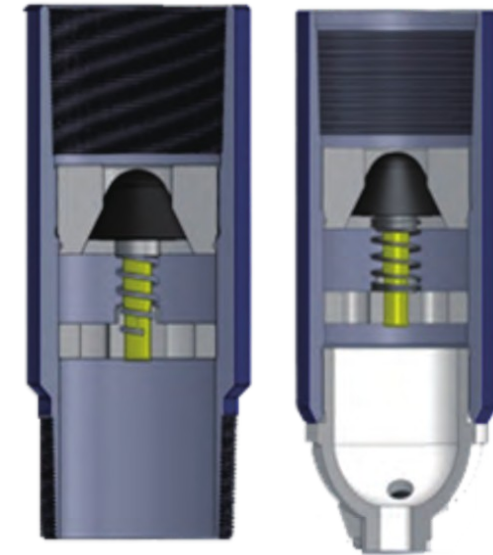
Cement Basket is a isolation device used in the process of suspending the sealing cement segments to prevent the occurrence With the advantages of rigid and semi-rigid cof displacement and settlement between the grout and drilling liquid. It is usually mounted on the casing string on the above of the weak stratum structure, but also used during stage cementing and surface cementing. Each fin of the basket can provide maximum flexibility and fluid channel while maintaining optimum support feature.





## SPRING TYPE FLOAT COLLAR & FLOAT SHOES

- ✦ The body is made of high quality alloy steel, high mechanical strength
- ✦ Compact structure, interior material are made of aluminum alloy for better durability
- ✦ Spring return check valve, preventing grout return



| Spec.   | Parameter |            |           |                        |                               |                              | Parameter |            |            |                        |                               |                              |
|---------|-----------|------------|-----------|------------------------|-------------------------------|------------------------------|-----------|------------|------------|------------------------|-------------------------------|------------------------------|
|         | Length mm | Max. OD mm | Min.ID mm | Water hole Diameter mm | Positive pressure-bearing mpa | Reverse pressure-bearing MPa | Length mm | Max. OD mm | Min. ID mm | Water hole Diameter mm | Positive pressure-bearing mpa | Reverse pressure-bearing MPa |
| 5"      | 512       | 141.3      | 111       | 60                     | 25                            | 30                           | 400       | 141.3      | 111        | 60                     | 25                            | 30                           |
| 5-1/2"  | 497       | 153.7      | 121       | 60                     | 25                            | 30                           | 427       | 153.7      | 121        | 60                     | 25                            | 30                           |
| 7"      | 504       | 194.5      | 157       | 60                     | 30                            | 35                           | 432       | 194.5      | 157        | 60                     | 25                            | 30                           |
| 9-5/8"  | 408       | 269.88     | 221       | 70                     | 25                            | 30                           | 374       | 269.88     | 221        | 70                     | 25                            | 30                           |
| 10-3/4" | 393       | 298.45     | 250       | 70                     | 25                            | 30                           | 356       | 298.45     | 250        | 70                     | 25                            | 30                           |
| 13-3/8" | 423       | 365.1      | 319       | 70                     | 25                            | 30                           | 400       | 365.1      | 319        | 70                     | 25                            | 30                           |

- ✦ Suitable for big slope well and horizontal and other kinds of well
- ✦ Temperature resistance can reach 180 deg-C, erosion resistance and better sealing
- ✦ Exceed API RP 10F III C standard
- ✦ Special materials are available to suit specific well conditions

## CEMENT SPRING TYPE FLOAT COLLAR & FLOAT SHOES

- ✦ Phenolic check valve, internally suppressed at high temperature and pressure, can withstand 70 Mpa pressure and 205 degree-C temperature.
- ✦ The spring is made of tin bronze alloys having good elasticity which can withstand 30,000 times elastic compression, easy durability.



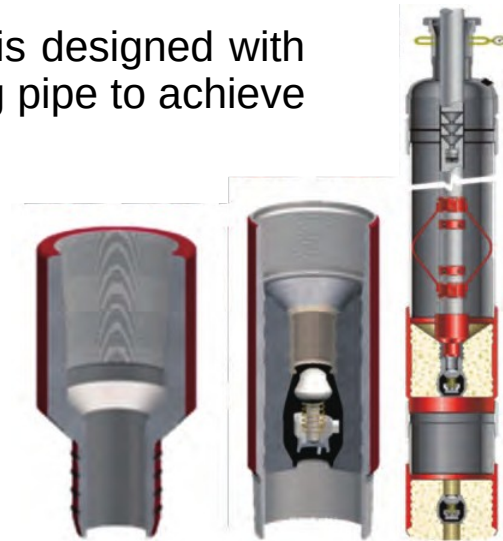
| Spec.   | Parameter |            |           |                        |                               |                              | Parameter |            |            |                        |                               |                              |
|---------|-----------|------------|-----------|------------------------|-------------------------------|------------------------------|-----------|------------|------------|------------------------|-------------------------------|------------------------------|
|         | Length mm | Max. OD mm | Min.ID mm | Water hole Diameter mm | Positive Pressure-Bearing Mpa | Reverse pressure-bearing MPa | Length mm | Max. OD mm | Min. ID mm | Water hole Diameter mm | Positive Pressure-Bearing Mpa | Reverse pressure-bearing MPa |
| 5"      | 512       | 141.3      | 111       | 60                     | 25                            | 30                           | 400       | 141.3      | 111        | 60                     | 25                            | 30                           |
| 5-1/2"  | 497       | 153.7      | 121       | 60                     | 25                            | 30                           | 427       | 153.7      | 121        | 60                     | 25                            | 30                           |
| 7"      | 504       | 194.5      | 157       | 60                     | 30                            | 35                           | 432       | 194.5      | 157        | 60                     | 25                            | 30                           |
| 9-5/8"  | 408       | 269.88     | 221       | 70                     | 25                            | 30                           | 374       | 269.88     | 221        | 70                     | 25                            | 30                           |
| 10-3/4" | 393       | 298.45     | 250       | 70                     | 25                            | 30                           | 356       | 298.45     | 250        | 70                     | 25                            | 30                           |
| 13-3/8" | 423       | 365.1      | 319       | 70                     | 25                            | 30                           | 400       | 365.1      | 319        | 70                     | 25                            | 30                           |

## STAB IN TYPE FLOAT COLLAR (INNER PLUG SET)

For big size interpolate cementing process designed cementing float collar. It is designed with sealing plug seat, matching with inserted sleeve which is connected with drilling pipe to achieve interpolation cementing technology.

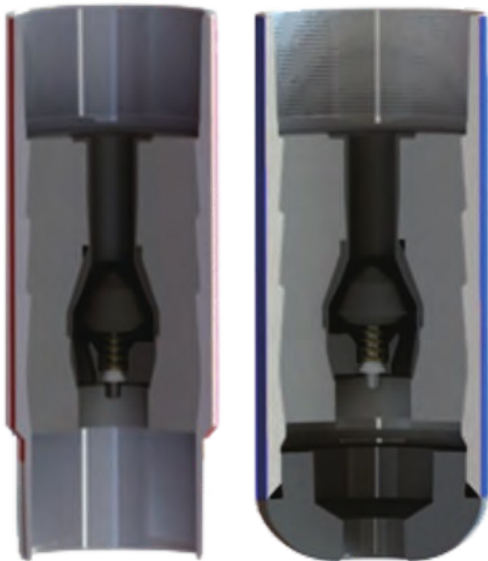
### Features:

- ★ Doesn't need big size cementing plug
- ★ Reduces the pollution by cement contacts
- ★ Reduces the drilling plug time
- ★ Cab be drilled by cone PDC drill bit
- ★ Matching with dedicated inserted sleeve to use
- ★ All kinds of special threads are available



| Spec.   | Parameter |            |           |                        |                               |                              | Parameter |            |            |                        |                               |                              |
|---------|-----------|------------|-----------|------------------------|-------------------------------|------------------------------|-----------|------------|------------|------------------------|-------------------------------|------------------------------|
|         | Length mm | Max. OD mm | Min.ID mm | Water hole Diameter mm | Positive Pressure-Bearing Mpa | Reverse Pressure-Bearing Mpa | Length mm | Max. OD mm | Min. ID mm | Water hole Diameter mm | Positive Pressure-Bearing Mpa | Reverse pressure-bearing MPa |
| 9-5/8"  | 408       | 269.88     | 221       | 70                     | 25                            | 30                           | 374       | 269.88     | 221        | 70                     | 25                            | 30                           |
| 10-3/4" | 393       | 298.45     | 250       | 70                     | 25                            | 30                           | 356       | 298.45     | 250        | 70                     | 25                            | 30                           |
| 13-3/8" | 423       | 365.1      | 319       | 70                     | 30                            | 35                           | 400       | 365.1      | 319        | 70                     | 25                            | 30                           |

## SELF FILL-UP TYPE FLOAT COLLARS & FLOAT SHOES



- ✦ It is automatic and adjustable filling when put the casing pipe, apparently reducing the pressure action on the bottom.
- ✦ This type of automatic self fill-up float collar and float shoes act through the transformation of a single valve to finish the automatic filling. Setting a steel ball groove on the valve rod, loading the ball before going down, the ball stick on the body, so that the spring cannot be reset, keeping the upper and lower portion of the valve transparent. Thus, the fluid of the well can enter the casing pipe which on the top of float collar and float shoe in the process of going down the well, keeping the pressure balanced inside and outside the casing. When there is downward pressure on the valve rod, to make the ball fall, the spring returns, converting to normal float collar and float shoe.

## CEMENTING PLUGS

A rubber cementing plug is used to separate the cement slurry from other fluids, reducing contamination and maintaining predictable slurry performance.

Cementing plugs are manufactured with graded rubber that is fused upon a composite or Aluminum core. These plugs are completely PDC drillable. Operating range of temperature with Aluminum core is up to 200 degree Farenheit. These plugs can be manufactured for higher operating temperature and for operation either in sythetic or regular mud fluids and are available in 4-1/2" to 20" sizes + any special sizes.



**Top**

**Bottom**

## REAMER SHOES



- ✦ Designed for problematic wells where reciprocating and/or rotation of the casing is anticipated to ream the hole and land the casing to total depth (TD). Features the valve which is API RP 5CT rated.
- ✦ Standard features include Aluminum eccentric nose with integral down jets, and side ports. Blades are coated with tungsten carbide cutting structure and height is customized for hole size. The reamer shoe is available in sizes 5-1/2" to 13-3/8".





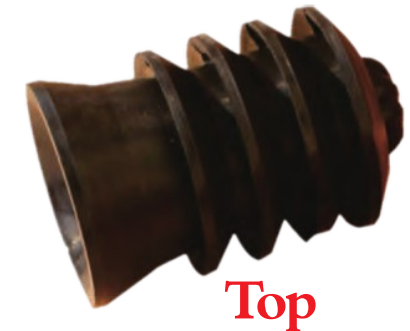
## NON-ROTATING FLOAT COLLARS

- ✦ Non-rotating plug and self-lock plug improve the drilling speed. It is easy to grind the plug and plug seat on the action of pressure and rotation while grinding, saving grinding time. These will not be affected in separated drilling mud and water, bump pressure and so on.
- ✦ No rotating spool compared with no-rotating plug, can significantly improve drilling speed.

## NON-ROTATING CEMENTING PLUGS

These series of cementing plugs have reinforced locking teeth built into the plugs, which lock together between the plugs and the float equipment to eliminate rotation of the plug during drill out.

These plugs are made of graded rubber with Aluminum or Phenolic core, and are completely PDC drillable. Operating range of temperature with Aluminum core is 200 degrees Fahrenheit. Plugs can be order for higher operating temperature and for operation either in sythetic or regular mud fluids. Available sizes from 4-1/2" to 20".



**Top**



**Bottom**

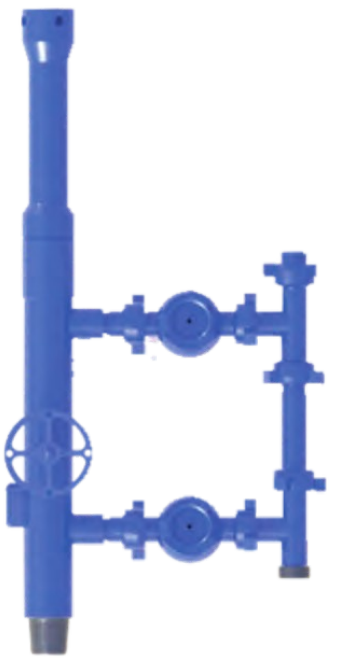
## GENERAL DP CEMENTING HEAD

- ✦ High-strength material and high quality thread.
- ✦ Compact structure, simple connection, safe and reliable
- ✦ High-strength body, high pressure proof, long life.
- ✦ Union of connecting manifold can be chosen according to requirements.

| Parameter |  |                                    |                        |                    |           |
|-----------|--|------------------------------------|------------------------|--------------------|-----------|
| Spec.     | Innder Dia. Where cement plug located (mm) | Length of holding cement plug (mm) | Working pressure (MPa) | Manifold connector | DP thread |
| 3-1/2"    | 60   | 300                                | 35                     | 1502 union         | 3 1/2" IF |
| 5"        | 90   | 350                                | 35                     |                    | 4 1/2" IF |
| 5-1/2"    | 90   | 380                                | 35                     |                    | 5 1/2" FH |



## LIFTING TYPE DP CEMENTING HEAD



| Parameter |  |                                    |                        |                    |           |
|-----------|--|------------------------------------|------------------------|--------------------|-----------|
| Spec.     | Innder Dia. Where cement plug located (mm) | Length of holding cement plug (mm) | Working pressure (MPa) | Manifold connector | DP thread |
| 3-1/2"    | 73   | 300                                | 50                     | 1502 union         | 3 1/2" IF |
| 5"        | 108  | 350                                | 50                     |                    | 4 1/2" IF |
| 5-1/2"    | 115  | 380                                | 50                     |                    | 5 1/2" FH |

- ✦ High quality material and high quality thread.
- ✦ With lifting sub, can lift pipe string.
- ✦ High pressure-bearing capacity.
- ✦ Monitoring cement plug moving.
- ✦ High pressure manifold, easy to operate.

## INTEGRAL TYPE OVERHIGH PRESSURE DP CEMENTING HEAD

- ✦ High-strength material and non-welded integral type structure which can bear high pressure.
- ✦ Indicator monitoring cement plug moving.
- ✦ High-pressure manifold, easy to operate.

| Parameter |  |                                    |                        |                    |           |
|-----------|--|------------------------------------|------------------------|--------------------|-----------|
| Spec.     | Innder Dia. Where cement plug located (mm) | Length of holding cement plug (mm) | Working pressure (MPa) | Manifold connector | DP thread |
| 3-1/2"    | 73   | 300                                | 70                     | 1502 union         | 3 1/2" IF |
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| 5-1/2"    | 115  | 380                                | 70                     |                    | 5 1/2" FH |



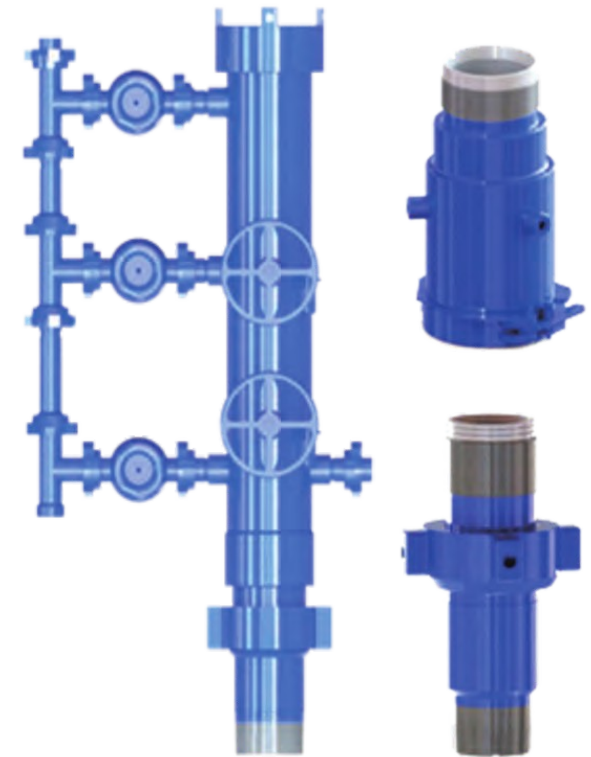
## SIMPLE TYPE CASING CEMENTING HEAD

| parameter |                  |                                    |                        |             |           |
|-----------|------------------|------------------------------------|------------------------|-------------|-----------|
| Spec.     | Innder Dia. (mm) | Length of holding cement plug (mm) | Working pressure (MPa) | Type of pin | Connector |
| 5-1/2"    | 121              | 300                                | 35                     | double      | 1502union |
| 7"        | 154              | 350                                | 21                     |             | 1502union |
| 9-5/8"    | 225              | 350                                | 21                     |             | 1502union |
| 10-3/4"   | 250              | 350                                | 21                     |             | 1502union |
| 13-3/8"   | 316              | 410                                | 14.21                  |             | 1502union |

- ✦ With a cement plug top rod, can prevent the cement plug.
- ✦ High-strength material and high quality thread.
- ✦ Compact structure, simple connection, safe and reliable.
- ✦ Easy structure, short delivery time and highly cost effective.

## QUICK MOUNTING CASING CEMENTING HEAD

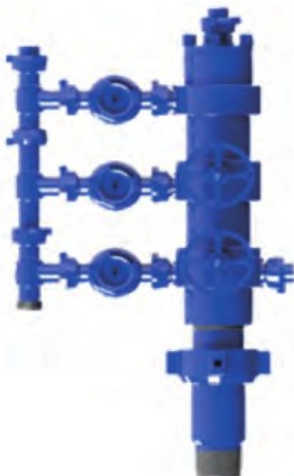
- ✦ High-strength material and high quality thread.
- ✦ The holding space of cement plug is big enough so that it can prevent the plug from being damaged by negative pressure of cementing.
- ✦ Union of connecting manifold can be chosen as per requirements.
- ✦ With a cement plug top rod, can prevent the cement plug up.
- ✦ Can choose matched high pressure manifold, easy to install.
- ✦ The quick mounting connector can connect with casing quickly.



| Parameter |  |                                    |             |      |                              |                |           |
|-----------|--|------------------------------------|-------------|------|------------------------------|----------------|-----------|
| Spec.     | Inner Dia.<br>Where<br>cement<br>plug<br>located<br>(mm) | Length of holding cement plug (mm) |             |      | Working<br>pressure<br>(MPa) | Type<br>of pin | Connector |
|           |  | Single                             | Double plug |      |                              |                |           |
|           |  |                                    | Up          | Down |                              |                |           |
| 5-1/2"    | 142  | 400                                | 300         | 300  | 50                           | double         | 1502union |
| 7"        | 181  | 450                                | 305         | 305  | 50                           |                | 1502union |
| 9-5/8"    | 247.6  | 550                                | 330         | 330  | 35                           |                | 1502union |
| 10-3/4"   | 276  | 550                                | 360         | 360  | 35                           |                | 1502union |
| 13-3/8"   | 341  | 600                                | 420         | 420  | 35                           |                | 1502union |

## INTEGRAL TYPE OVERHIGH PRESSURE CEMENTING HEAD

- ✦ Made of high quality alloy steel, high pressure-proof, long life.
- ✦ Integral structure design, no weldig, safe. Removal type union, general type. Indicator monitoring cement plug moving.
- ✦ Suitable for various kinds of well & temperature environment.
- ✦ Suitable for 5-1/2" to 13-3/8" casing.



## CIRCULATING HEAD



Simple Type



Integral

| Parameter |   |                                    |             |      |                        |             |           |
|-----------|---|------------------------------------|-------------|------|------------------------|-------------|-----------|
| Spec.     | Inner Dia. Where cement plug located (mm) | Length of holding cement plug (mm) |             |      | Working pressure (MPa) | Type of pin | Connector |
|           |   | Single                             | Double plug |      |                        |             |           |
|           |   |                                    | Up          | Down |                        |             |           |
| 5-1/2"    | 142                                       | 400                                | 300         | 300  | 70                     | double      | 1502union |
| 7"        | 181                                       | 450                                | 305         | 305  |                        |             | 1502union |
| 9-5/8"    | 247.6                                     | 550                                | 330         | 330  |                        |             | 1502union |
| 10-3/4"   | 276                                       | 550                                | 360         | 360  |                        |             | 1502union |
| 13-3/8"   | 341                                       | 600                                | 420         | 420  |                        |             | 1502union |



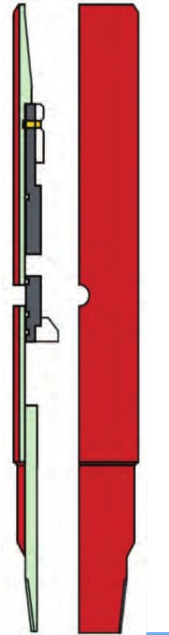
Big Union



Clamp Type



## MECHANICAL STAGE COLLAR



- ✦ Short body, complete stress is small.
- ✦ Special bypass design solving the liquid compression between opening dart and closing plug.
- ✦ Lock ring design ensures permanently closed after completion.

| Parameter                       |        |
|---------------------------------|--------|
| Size                            | 9-5/8" |
| Length, mm                      | 760    |
| Max.Diameter, mm                | 282    |
| Opening pressure, MPa           | 6-8    |
| Closing Pressure, MPa           | 8-10   |
| Opening Casing Diameter, mm     | 190.5  |
| DN, mm                          | 218    |
| Closing plug length, mm         | 280    |
| Closing plug bowl diameter, mm  | 236    |
| Open dart length, mm            | 470    |
| Shut off plug length, mm        | 383    |
| Shut off plug bowl Diameter, mm | 235    |
| Baffle ring ID, mm              | 165.6  |
| Baffle ring OD, mm              | 237    |

## HYDRAULIC STAGE COLLAR



- ✦ Minimum volume and easy drilling parts design.
- ✦ Special bypass design solving the liquid compression between opening dart and closing plug.
- ✦ Lock ring design ensures permanently closed after completion.

| Parameter                       |           |        |
|---------------------------------|-----------|--------|
| Size                            | 5 1/2" 7" | 7"     |
| Length, mm                      | 930       | 956    |
| Max.Diameter, mm                | 168       | 210    |
| Opening pressure, MPa           | 17-18     | 17-18  |
| Closing Pressure, MPa           | 8-10      | 8-10   |
| Opening Casing Diameter, mm     | 87.31     | 114.3  |
| DN, mm                          | 123.03    | 157.48 |
| Closing plug length, mm         | 267       | 273    |
| Closing plug bowl diameter, mm  | 135       | 169.86 |
| Open dart length, mm            | 312.74    | 381    |
| Shut off plug length, mm        | 391.32    | 422.26 |
| Shut off plug bowl Diameter, mm | 139.7     | 173.83 |
| Baffle ring ID, mm              | 71.12     | 77.44  |
| Baffle ring OD, mm              | 153.67    | 200.03 |

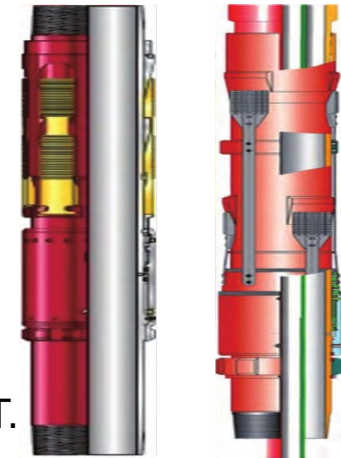
## MECHANICAL DRILLING LINER HANGER



- ✦ Hanging casing by hoisting, forward rotation, lowering down, no need of injecting ball and holding pressure, the operation is simple.
- ✦ Suitable for vertical well and low angle deviated well.
- ✦ High mechanical strength, strong hanging ability.
- ✦ No need to find neutral point when backing off, it will be easily fall open buckle as the drill press 5~8 T.

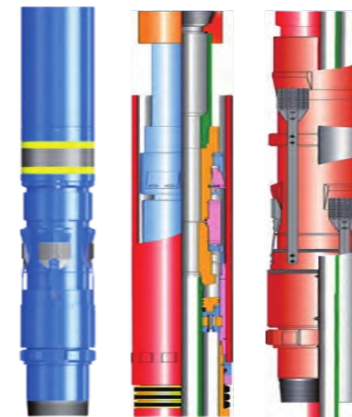
## HYDRAULIC TYPE LINER HANGER

- ✦ More slips, suitable for heavy-duty requirements.
- ✦ Suitable for vertical well and inclined shaft cementing work.
- ✦ High mechanical strength.
- ✦ No need to find the neutral point when backing off, it will easily fall open buckle as the drill press 5~8 T.



## TOP ISOLATION TYPE LINER HANGER

- ✦ Provide back-up packer means for the oil, gas & water channeling problem exist in liner cementing.
- ✦ Packer rubber tube using ZP2020 rubber.
- ✦ Pressure  $\geq 35$  Mpa, temperature 180<sup>0</sup> C.



## HYDRAULIC EXPANDABLE CASING PACKER

External casing packer is connected in the casing pipe, using hydraulic way blowing up the rubber part of casing packer to finish complete packer. Mostly applied to absorption well, high pressure well, multiple pressure formation well completion and other completion process.

- ✦ Strong adaptability, it can be used in a variety of different conditions of oil & gas wells.
- ✦ The valve system can effectively protect and accurately control the tool safety seat seal.
- ✦ Cones expansion coefficient may packer large diameter borehole.
- ✦ High temperature resistance levels, bear big pressure difference and small residual deformation.
- ✦ In combination with other cementing tools to achieve different conditions of cementing well, effective solving to the high pressure, low pressure, leakage, back water, subsidence and other complex oil & gas well cementing problems.



| Parameter |         |         |             |                     |                    |            |
|-----------|---------|---------|-------------|---------------------|--------------------|------------|
| DN (mm)   | OD (mm) | OD (mm) | Length (mm) | Sealing Length (mm) | Work Diameter (mm) | Thread     |
| 114       | 146     | 97      | 2760        | ≥950                | 155 - 241          | 4 1/2 LCSG |
| 140       | 178     | 121     | 3115        | ≥950                | 188 - 280          | 5 1/2 LCSG |
| 140       | 190     | 121     | 3115        | ≥950                | 201 - 314          | 5 1/2 LCSG |
| 178       | 210     | 155     | 3170        | ≥950                | 220 - 337          | 7 LCSG     |
| 245       | 286     | 220     | 3225        | ≥950                | 303 - 472          | 9 5/8 LCSG |

## COMPRESSION TYPE EXTERNAL CASING PACKER

- ✦ Used in all kinds of conditions deep well, ultra deep well, directional well, horizontal well and sidetrack well.
- ✦ Special solid Nitrile packer rubber can form a reliable packer segment between the casing pipe and casing pipe or between casing pipe and bare hole.
- ✦ With good temperature resistance ability, working temperature can reach 150<sup>0</sup> C ~ 170<sup>0</sup> C.
- ✦ The pack rubber QTY is optional according to the diameter of casing pipe or bare hole.
- ✦ The solid packer rubber with high strength, small diameter is suitable for side-track well, small bare well and all kinds of complex conditions downhole cementing and completion.
- ✦ Can provide same inner tube wells string.



| Parameter |                    |   |                   |
|-----------|--------------------|---|-------------------|
| DN(mm)    | Max. Diameter (mm) | Diameter of packer bare hole or inner diameter of Casing pipe(mm) | Thread            |
| 114       | 139.7              | 195.3   | API casing thread |
| 140       | 174.6              | 250.8   |                   |
| 140       | 190.5              | 295.3   |                   |
| 178       | 203.2              | 265.1   |                   |
| 245       | 285.8              | 387.4   |                   |