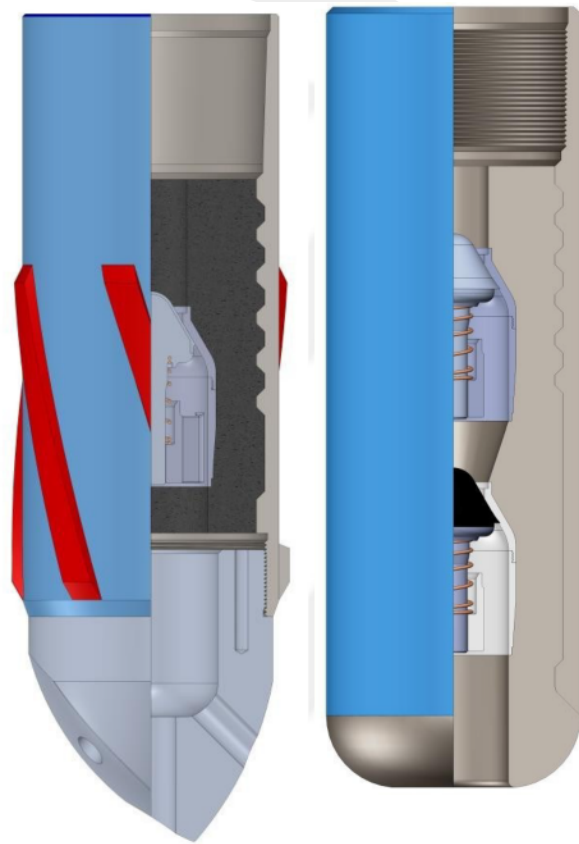




OIL PRODUCTS
WELL COMPLETIONS



Oilfield

Cementing Equipmnet

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Cementing Plug

Cementing plugs are used to separate the cement slurry from other fluids, reducing contamination and maintaining expected slurry performance and wiping the casing ID clean of Drilling Fluids. They also prevent over displacement of the cement slurry and indicate when the cementing job is complete. SAZ Oilfield provides two types of cementing plugs which are generally used in cementing operation.

- ⊙ Conventional (Rotating) Type Cementing Plug
- ⊙ Non-Rotating Type Cementing Plug

Conventional Top & Bottom Cementing Plugs are available in Phenolic plastic core & Aluminum core with molded wiping fins from rubber.

Non-Rotating Top & Bottom Cementing Plugs are available in Phenolic plastic core & Aluminum core with molded wiping fins from rubber with Non Rotating Insert. It is designed to prevent rotation of the plugs during drill out operations

The bottom plug (**In Red**) is launched ahead of the cement slurry to minimize contamination by fluids inside the casing prior to cementing. A rupture disk in the plug body ruptures to allow the cement slurry to pass through after the plug reaches the Float Collar. The Top Plug (**In Black**) has a solid body that provides positive indication of contact with the Float Collar and Bottom Plug through an increase in pump pressure

Features

- Five fins design.
- Phenolic & aluminium internal core available.
- Oil Resistant.
- Five Fins provides greater wiping area.
- Plugs are available in Nitrile, Viton, Aflas and other elastomers.
- Plugs are available in conventional and Non Rotating Design.
- One plug can be used in range of PPF for same size of casing.
- Plugs are PDC drillable.
- Maximum temperature rating 400°F.
- Non Rotating profile reduces the drilling time



Cementing Plug

Cementing Plug				
Casing		Plug	Bottom Plug Rating (psi)	Top Plug Rating (psi)
Size (in)	Weight (ppf)	OD (in)		
4 1/2	9.5-13.5	4.33	300-400	4000
5 1/2	14.0-23.0	5.31	300-400	4000
6-5/8	20.0-32.0	6.46	300-400	4000
7	17.0-38.0	6.69	300-400	5000
7-5/8	24.0-39.0	7.28	300-400	5000
8-5/8	24.0-39.0	8.27	300-400	7000
9-5/8	36.0-53.5	9.25	300-400	7000
13-3/8	48.0-72.0	13.11	300-400	6000

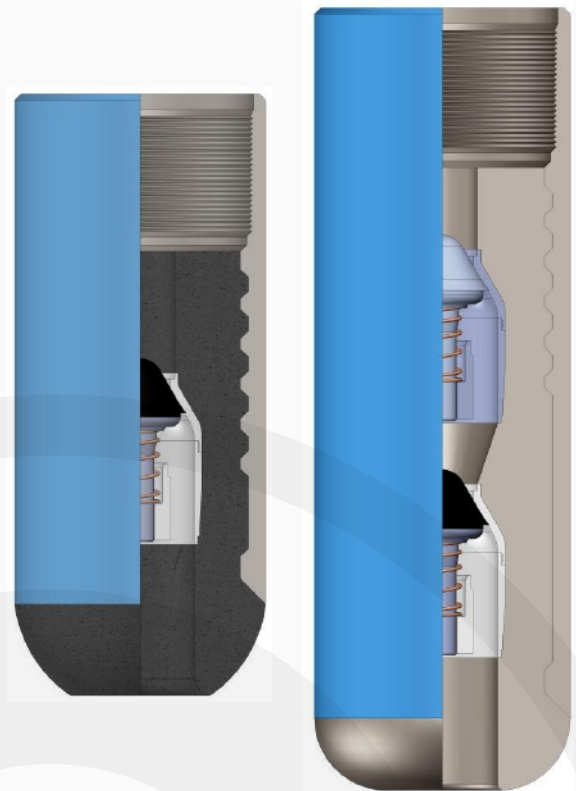
Float Shoe

The float shoe contains a backpressure valve that prevent fluids from entering the casing while the pipe is lowered into the hole and prevents cement from flowing back into the casing after placement, while enabling circulation down through the casing.

The valves are made up of engineered composite material that provide maximum strength with high wear resistance properties keeping the temperature and flow rating intact.

Features

- Fast Drill Out
- Internal Parts are PDC drillable.
- Float Shoe is available in all API grade material.
- Available with API or Premium Connections
- Jet port/Nose configuration is available upon request. CPS offers Side Jet Ports, Down Jet Ports and Up Jet Ports.
- Valve is tested as per API RP 10F Category III C.
- Float Shoe is available in Single and Double valve Configuration.
- Maximum Back Pressure rating: 5000 psi @400°F.
- Tubing Float Shoe for high pressure up to 10000 PSI.
- Float Shoe is available in different type of nose configuration as per the application.
- Chip breaker features are in all type of aluminum nose as well as Phenolic nose.



Following are the available Nose configurations to overcome obstructions such as mud cake, swelling shell, rocks and washed out area in the well bore and guide the casing or liners to total depth.



BULLET NOSE



SPADE NOSE



ECCENTRIC NOSE

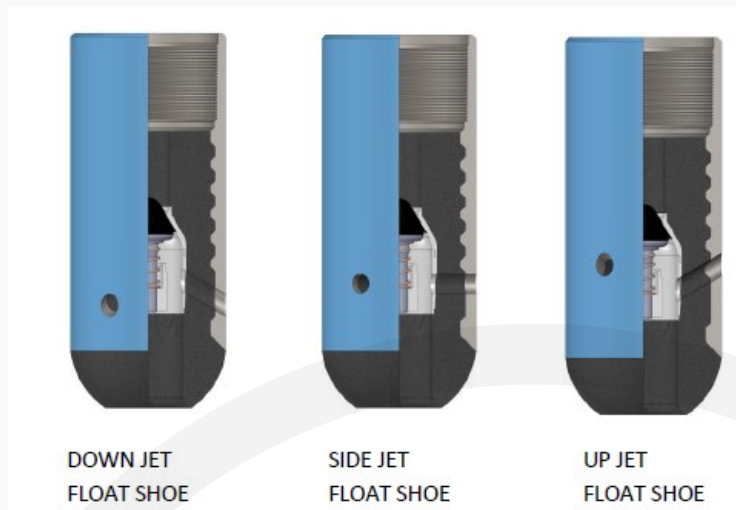


PHENOLIC NOSE

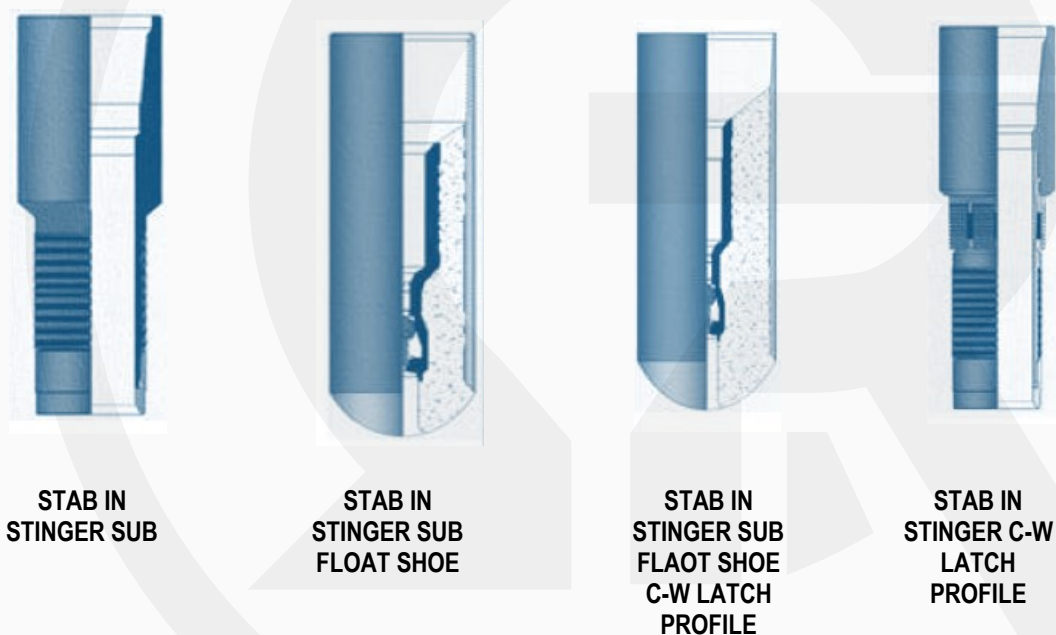
Float Shoe

Types of Float Shoes

- Down/Up/Side Jet Float Shoe** have angled holes drilled for continuous and uninterrupted flow of the fluid which helps in hole cleaning. There are three down-jet ports located below float valve in side of the float shoe shell to help to increase cement bonding strength due to swirl effect by cementing. These Float Shoes evenly disperses fluid through multiple ports and effectively distributes the fluid in the annular space both above and below the Float Shoe to help prevent the initiation of channeling. This helps the casing to be easily washed past ledges and tight sections.



- Stab in equipment** is for cementing large diameter casing string through tubing or drill pipe. It provides greater accuracy in slurry displacement. The Latch profile is also available. The stinger is drillable cast with PDC drillable alloy. These are available with Single & Double valve.



Float Shoe

Casing Float Shoe				
Size (in)	Weight (ppf)	ID (in)	Coupling OD (in)	Connection
4-1/2	12.6	3.958	5.000	API/ Premium Threads
5	11.5	4.560	5.563	
5-1/2	14.0	5.012	6.050	
6-5/8	20.0	6.049	7.390	
7	17.0	6.538	7.656	
7-5/8	24.0	7.025	8.500	
8-5/8	24.0	8.097	9.625	
9-5/8	36.0	8.921	10.625	
10-3/4	40.5	9.950	11.750	
11-3/4	42.0	11.084	12.750	
13-3/8	48.0	12.715	14.375	
16	65.0	15.250	17.000	
18-5/8	87.5	17.755	20.000	
20	94.0	19.124	21.000	
Tubing Float Shoe				
2-7/8	6.4	2.441	3.688	API/ Premium Threads
3-1/2	9.2	2.992	4.500	
4-1/2	12.6	3.958	5.563	

Float Collar

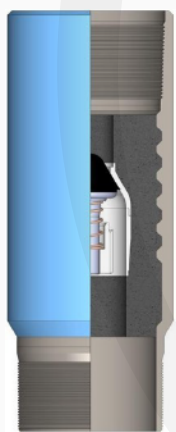
The float collar is run in a casing assembly, usually several joints above the float shoe. It provides a seat for the cement plugs, to help top plugs shut off fluid flow and to prevent over-displacement of the cement. The space between the float shoe and float collar provides a containment area to entrap the likely-contaminated fluids from the wiping action of the cementing plug, securing the contaminated fluid away from the shoe where a strong cement bond is of primary importance.

The pressure holding capability of a float collar when a plug bumps against it is referred to as bump pressure. The pressure from the annulus on the back side of the valve is called the back pressure. The bumping confirms that the displacement is complete. The valve and the cement around it are capable of withstanding long periods of circulation.

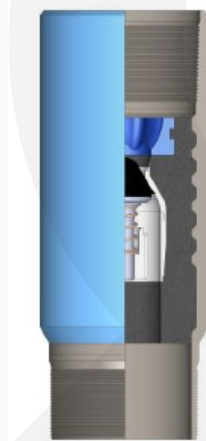
Features

- Fast Drill Out.
- Internal Parts are PDC drillable.
- Float Collar is available in all API grade material.
- Available with API or Premium Connections
- Non-rotating configuration available.
- Valve is tested as per API RP 10F Category III C.
- Float Collar is available in Single and Double valve Configuration.
- Maximum Back Pressure rating: 5000 psi @400°F.
- Tubing Float Collar for high pressure up to 10000 PSI.
- Orifice float collar for Tie-back application.
- Ball Catcher/Ball Deflector is available upon request.
- Flat surface provides platform to bump the bottom plug.
- Baffle plate float collar is available upon request.
- Inner String float collar is available for larger size casing

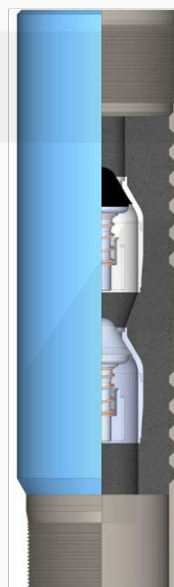
Types of Float Collar



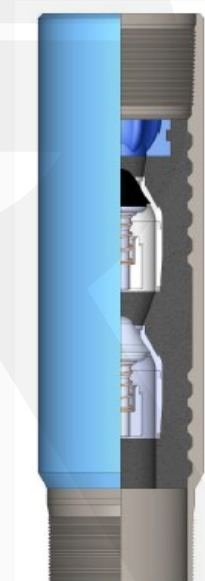
SINGLE VALVE



**SINGLE VALVE
NON-ROTATING**



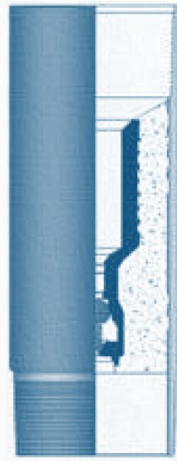
DOUBLE VALVE



**DOUBLE VALVE
NON-ROTATING**

Float Collar

Stab in Float Collar is for cementing large diameter casing string through tubing or drill pipe. It provides greater accuracy in slurry displacement. The Latch profile is also available. The stinger is drillable cast with PDC drillable alloy. These are available with Single & Double valve.



STAB IN FLOAT COLLAR



STAB IN STINGER

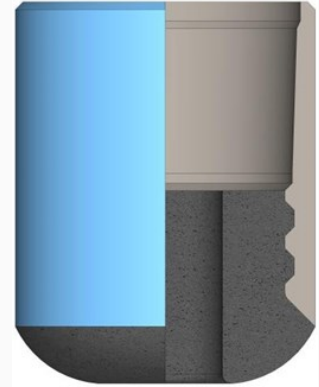
Casing Float Collar				
Size (in)	Weight (ppf)	ID (in)	Coupling OD (in)	Connection
4-1/2	12.6	3.958	5.000	API/ Premium Threads
5	11.5	4.560	5.563	
5-1/2	14.0	5.012	6.050	
6-5/8	20.0	6.049	7.390	
7	17.0	6.538	7.656	
7-5/8	24.0	7.025	8.500	
8-5/8	24.0	8.097	9.625	
9-5/8	36.0	8.921	10.625	
10-3/4	40.5	9.950	11.750	
11-3/4	42.0	11.084	12.750	
13-3/8	48.0	12.715	14.375	
16	65.0	15.250	17.000	
18-5/8	87.5	17.755	20.000	
20	94.0	19.124	21.000	
Tubing Float Collar				
2-7/8	6.4	2.441	3.688	API/ Premium Threads
3-1/2	9.2	2.992	4.500	
4-1/2	12.6	3.958	5.563	

Guide Shoe

Guide Shoe is a cylindrical steel section with a rounded nose which guides the casing toward the that is attached to the bottom of the casing string towards the center of the hole.

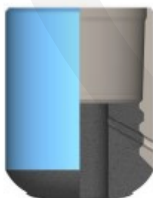
Features

- Available in all API grade material.
- Available with API or Premium Connections
- Jet port configuration is available upon request. CPS offers Side Jet Ports, Down Jet Ports and Up Jet Ports

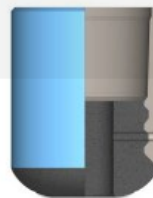


Casing Guide Shoe				
Size (in)	Weight (ppf)	ID (in)	Coupling OD (in)	Connection
4-1/2	12.6	3.958	5.000	API/ Premium Threads
5	11.5	4.560	5.563	
5-1/2	14.0	5.012	6.050	
6-5/8	20.0	6.049	7.390	
7	17.0	6.538	7.656	
7-5/8	24.0	7.025	8.500	
8-5/8	24.0	8.097	9.625	
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16	65.0	15.250	17.000	
18-5/8	87.5	17.755	20.000	
20	94.0	19.124	21.000	
Tubing Guide Shoe				
2-7/8	6.4	2.441	3.688	API/ Premium Threads
3-1/2	9.2	2.992	4.500	
4-1/2	12.6	3.958	5.563	

Jet Port Configurations



DOWN JET PORT

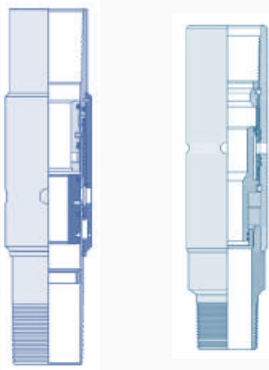


SIDE JET PORT



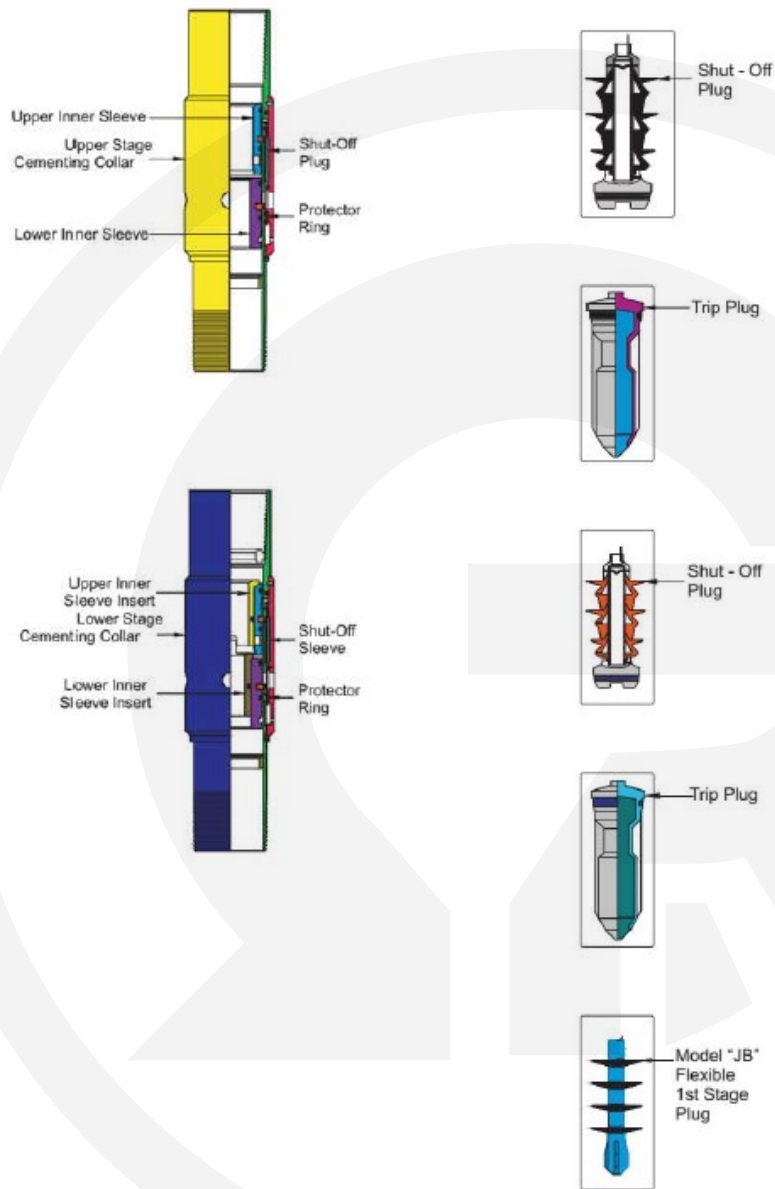
UP JET PORT

Stage Cementing Equipment's

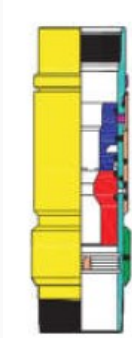


Stage Cementing Collar is used to cement casing in two or more stages and allows operators great flexibility in controlling flow rheology, cement chemistry, and downhole hydrostatic pressures.

Three Stage Cementing is used to place a long column of cement about a weak zone. The Stage Collar is located a short distance about the weak zone. The First Stage is cemented by pumping cement up to the Collar. The Collar is then opened using the Trip Plug and then the Second and Third Stages are cemented.

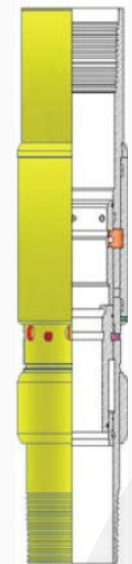


Stage Cementing Equipment's



Special Stage Cementing Collar

Stage Cementing Collar covers sizes larger than 9-5/8 inch. It offers operators all of the benefits of the Stage Collar (sizes 9-5/8 in. and smaller), and also features an outer closing sleeve which cannot be accidentally reopened. Non-API threads require the use of special casing sub.

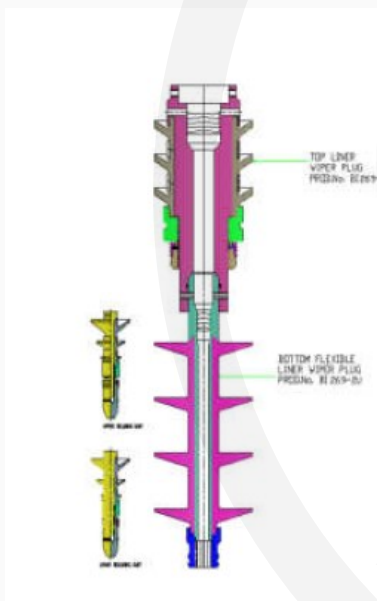


Hydraulic Opening Stage Cementing Collar

This stage collar features an opening sleeve with area difference on opening site ends that allows it to be manipulated hydraulically. The hydraulic opening feature makes this tool's use very practical in horizontal wells.

The elimination of the need to use a mechanical opening device has several other merits. Casing run in highly deviated wells can now be two stage cemented without having to use continuous displacement type plugs.

This hydraulic stage-cementing collar can be run with Liner Hanger in conjunction with one or several inflatable packers and used to isolate and selectively cement certain casing intervals. Slotted or pre-drilled liner can be run below a inflatable packers/hydraulic stage collar assembly, allowing cement to be pumped above the packer and isolated from highly sensitive producing zones.



Four Plug Systems for Stage Cementing

Two Stage Wiper plug system is a very effective means of wiping in two stages with liner hanger & ECP Packer. Top Liner Wiper Plug is a flexible type rubber plug, which is assembled with the Top Liner Wiper Plug with the help of shear pins. The plugs have Non-Rotational features, which allow easy PDC drilling after cementing.

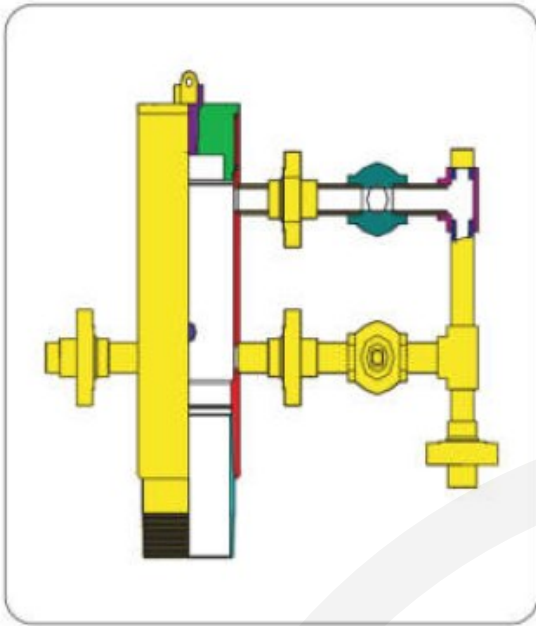
The Bottom Liner Wiper Plug releases from the Top Liner Wiper Plug by bumping of lower releasing dart and it travels through the Hydraulic Stage Cementing Collar without any effect and seats into the Landing Collar. The pressure rises against Bottom Liner Wiper Plug which actuate ECP Packer then opens the ports of the stage tool.

The upper dart bump in to Top Liner wiper plug and release the Top Liner Wiper Plug, seats in the closing seat of the hydraulic stage cementing collar. It closes the ports by shearing the shear pin and shifting the closing sleeve after second stage cementing job.

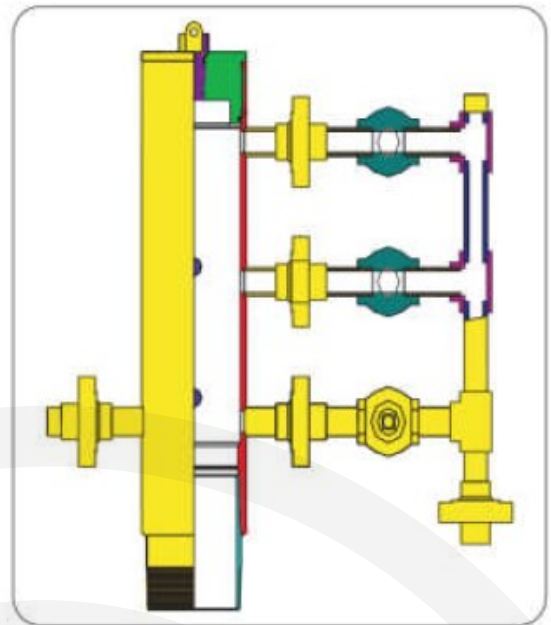
Stage Cementing Equipment's

Single and Double Plug Type Conventional Cementing Head

Conventional Cementing Head is used with Model Stage Collars to drop flexible Cementing Plugs and Shut off Plugs and Conventional Top & Bottom Cementing Plug. The Cement Heads are available in either single or double cavity configurations.



SINGLE PLUG CEMENTING HEAD



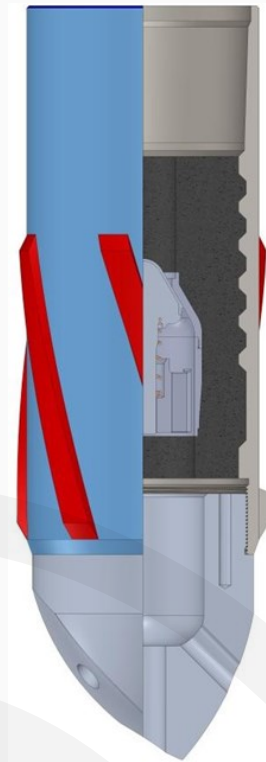
DUAL PLUG CEMENTING HEAD

Reamer Shoe

Reamer Shoe is designed for demanding downhole applications and is ideal for well bore condition with severe doglegs, high build rates, and extended horizontal runs. It effectively negotiates around ledges, swelling shale, mud cake build-up on porous formations, or sand bridges occurring in the wellbore.

Features

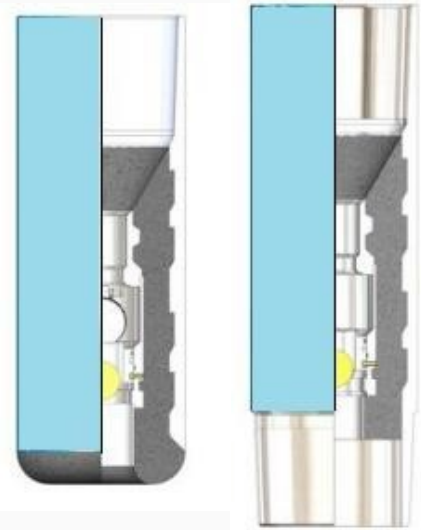
- Carbide spiral vanes provides full-bore coverage in rotating and reciprocating applications, provides easy passage to total depth.
- The eccentric nose can climb ledges and negotiate other wellbore obstructions while the cutting structure reams out tight spots.
- Reamer shoe enables both rotating and reciprocating reaming action while running casing and liners.
- Flow ports provide full-bore coverage while rotating and reaming, and they prevent channeling while cement is pumped.
- All internal parts are standard aluminum alloy nose are PDC drillable.
- Available with API or Premium Connections
- Reamer Shoe is available in Single and Double valve Configuration.
- Maximum Back Pressure rating: 5000 psi @400°F.
- Reamer shoe is available in welded design as well as single piece design.



Guide Shoe						
Size (in)	Weight (ppf)	ID (in)	Coupling OD (in)	Hole Size (in)	Reamer OD (in)	Connection
4-1/2	12.6	3.958	5.000	6	5.875	API/ Premium Threads
5	11.5	4.560	5.563	6-1/2	6.375	
5-1/2	14.0	5.012	6.050	7-7/8	7.75	
6-5/8	20.0	6.049	7.390	8-1/2	8.375	
7	17.0	6.538	7.656	8-1/2	8.375	
7-5/8	24.0	7.025	8.500	9-7/8	9.75	
8-5/8	24.0	8.097	9.625	11	10.875	
9-5/8	36.0	8.921	10.625	12-1/4	12.125	
10-3/4	40.5	9.950	11.750	12-1/4	12.125	
11-3/4	42.0	11.084	12.750	15-1/2	15.375	
13-3/8	48.0	12.715	14.375	17-1/2	17.375	
16	65.0	15.250	17.000	20	19.875	
18-5/8	87.5	17.755	20.000	22	21.875	
20	94.0	19.124	21.000	24	23.875	

Autofill Float Equipment

SAZ Oilfield's Auto Fill Float Shoe/Collar permits the casing to fill automatically while being run into the hole. The valve is in the open position while running in allowing maximum filling of the casing as it is lowered into the well bore. The valve is converted into a check valve by dropping a weighted ball. The deactivation ball is pumped from surface until the ball lands in the sleeve of the Auto Fill Valve. When the ball seats in the ball seat, pressure is increased until the shear pins shear. The sleeve then shifts to release the flapper valve to allow it to seal.



Autofill Float Equipment				
Size (in)	Weight (ppf)	ID (in)	Coupling OD (in)	Connection
4-1/2	12.6	3.958	5.000	API/ Premium Threads
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5-1/2	14.0	5.012	6.050	
6-5/8	20.0	6.049	7.390	
7	17.0	6.538	7.656	
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8-5/8	24.0	8.097	9.625	
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13-3/8	48.0	12.715	14.375	
16	65.0	15.250	17.000	
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20	94.0	19.124	21.000	



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