



SAZ Oilfield

Bridge Plugs

Hydra Bridge Plugs

SAZ Oilfield Equipment offers a wide range of Bridge Plugs for permanent or temporary well bore isolation. Our **Hydra™** line of Bridge Plugs are based on field proven design and have an extensive track record globally over a wide range of downhole conditions.

Application

- Multi-Zone isolation
- Multi-Zone stimulation
- Plug and Abandonment

Features and Benefits

- Available from 2-3/8" to 13-3/8" Casing Sizes
- Up to 10,000 psi & 400°F Rating
- Anti-preset mechanism
- Easy conversion to Cement Retainers
- Cast Iron construction, easily drillable
- Convertible from Mechanical to Wireline Set and vice versa



**Mechanical Set
Convertible
Bridge Plug**



**Wireline Set
Convertible
Bridge Plug**

Types

- **HydraMS™** Mechanical Set
- **HydraWS™** Wireline Set
- **HydraHM™** Hydraulically Actuated Mechanically Set
- **HydraWR™** Wireline/Hydraulic Set Retrievable

Convertible Bridge Plug				
Casing		Plug	Setting Range (Inch)	Elastomer
OD (Inch)	Weight (PPF)	OD (Inch)		
3 1/2	7.7 -10.2	2.750	2.922 - 3.068	Nitrile / HNBR / Aflas / Viton
4 1/2	9.4 -16.4	3.593	3.754 - 4.090	
5	11.5 - 21	3.710	3.920 - 4.560	
5 1/2	13.0 - 23.0	4.240	4.580 - 5.044	
7	17.0 - 35.0	5.610	6.004 - 6.538	
7	32.0 - 38.0	5.375	5.920 - 6.094	
9 5/8	29.3 - 53.5	8.120	8.535 - 9.063	
13 3/8	48.0 - 72.0	12.000	12.347 -12.715	

HydraMS Mechanical Set Bridge Plugs are deployed on Tubing or Drill Pipe and set by mechanical setting tool in either tension or compression. It's locked construction design and large clearance enables faster and safer run-in speed. Provides optimum strength, easy drillability, and high pressure ratings. Easily converts from Mechanical Set to Wireline set by changing the upper slips. Conversion kit available to convert from Bridge Plug to Cement Retainer.

HydraWS Wireline Set Bridge Plugs are deployed on Wireline and set via appropriate Wireline Pressure Setting Assembly and Wireline Adapter Kit. This deployment offers customer a safe and efficient method of placing a drillable Bridge Plug at any pre-determined point in the casing without having to dump cement on top to prevent leakage.

Hydra Bridge Plugs



**Wireline Set
Bridge Plug
WSB**



**Wireline Set
Bridge Plug
WSM**

Bridge Plug					
Bridge Plug	Casing		Plug	Setting Range (Inch)	Elastomer
	OD (Inch)	Weight (PPF)	OD (Inch)		
WSM	2 3/8	3.3 - 5.9	1.710	1.867 - 2.041	NITRILE / HNBR / AFLAS / VITON
	2 7/8	6.4 - 8.6	2.175	2.259 - 2.441	
	3 1/2	7.7 - 10.2	2.750	2.922 - 3.068	
	4 1/2	9.4 - 16.4	3.593	3.754 - 4.090	
WSB	4 1/2	9.4 - 16.4	3.593	3.754 - 4.090	
	5	11.5 - 21	3.710	3.920 - 4.560	
	5 1/2	13.0 - 23.0	4.240	4.580 - 5.044	
	7	17.0 - 35.0	5.610	6.004 - 6.538	
	7	32.0 - 38.0	5.375	5.920 - 6.094	
	9 5/8	29.3 - 53.5	8.120	8.535 - 9.063	
	13 3/8	48.0 - 72.0	12.000	12.347 - 12.715	

HydraWSM Wireline Set Bridge Plugs are available from 2-3/8" to 4-1/2" casing sizes. These Bridge Plugs are constructed with single piece elastomeric packing elements thereby providing an economical means for zone isolation, fracturing and other wellbore treatments. The small OD helps in speed and safety while running in.

HydraWSB Wireline Set Bridge Plugs are available from 4-1/2" to 13-3/8" sizes. These high performance Bridge Plugs contain three piece Elastomeric Elements with metallic back-up rings on either side of the Elements to avoid rubber extrusion in high pressure and high temperature environment. For larger plugs deployed in 9-5/8", 10-3/4" and 13-3/8" casing sizes, the three piece packing elements are replaced with a single piece element, with option to retain the three piece element design.

Hydra Bridge Plugs

SAZ HydraHM™ Hydro-Mechanical Bridge Plug is hydraulically actuated and mechanically set, thereby eliminating the need for an external mechanical or wireline setting tool. These Bridge Plugs can be run and set in tandem with retrievable production packers or squeeze packers. The plugs offer customer flexibility on deployment for zonal isolation, squeeze cementing, fracturing, and Plug & Abandonment.

HydraHM Bridge Plug internal setting mechanism consists of Ball Seat, Setting Sleeve and Shear Stud. To set the Bridge Plug, a setting ball is dropped from surface and pressure is applied which sets the upper slips. Then the work string is picked up in tension which sets the packing element. The work string is then released by either shearing the shear stud or rotating 10 turns to the right.



HydraHM™ Hydro-Mechanical Bridge Plug								
Casing		Setting Range (Inch)	Plug max. (inch)	Shear Force	Thread Box Up	Ball OD (inch)	Differential Pressure (psi)	Temp. Range (°F)
OD (Inch)	Weight (PPF)							
4-1/2	9.5 - 15.1	3.826 -	3.593	33,000	2-3/8” EUE	1 - 1/2	10,000	70 - 275
5	11.5 - 20.8	4.154 - 4.560	3.937					
5-1/2	13.0 - 23.0	4.580 - 5.044	4.312					
6 -5/8	17.0 - 32.0	5.595 - 6.135	5.370					
7	17.0 - 35.0	6.004 - 6.366	5.687	55,000	2-7/8” EUE 3-1/2” IF	1 - 3/4		
7-5/8	17.0 - 35.0	6.625 - 7.125	6.312					
8-5/8	24.0 - 49.0	7.511 - 8.097	6.312		2-7/8” EUE 3-1/2” IF		8,000	
9-5/8	24.0 - 49.0	8.435 - 9.063	8.125					
13-3/8	48.0 - 80.7	12.175 - 2.715	8.125		2 7/8” EUE 4-1/2” IF	2 -11/64	3,000	

Hydra Bridge Plugs

SAZ HydraWR™ Wireline or Hydraulic Set Retrievable Bridge Plug is a high-performance Retrievable Bridge Plug that can be deployed on wireline or jointed pipe and retrieved via jointed pipe. It is ideally suited for temporary wellbore isolation without killing the well as the plug can be deployed and retrieved under pressure.

The high pressure from above and below thereby offering customer flexibility for temporary zonal isolation, acidizing and surface equipment repairs like well head replacements by safely keeping the wellbore fluids under control.



Hydra WR™ Wireline Retrievable Bridge Plug				
Casing		Setting Range (Inch)	Plug OD (Inch)	Elastomer
OD (Inch)	Weight (PPF)			
3 1/2	7.7 - 10.2	2.992-3.068	2.700	NITRILE/ HNBR/ VITON/AFLAS
4	9.5 - 11.0	3.476-3.548		
	10.46 - 12.95	3.340-3.476	3.187	
4 1/2	9.5 - 13.5	3.920-4.090	3.750	
	13.5 - 15.1	3.826-3.920	3.650	
	15.1 - 16.6	3.754-3.826	3.625	
5	11.5 - 15.0	4.408-4.560	4.125	
	18.0 - 21.0	4.154-4.276	3.969	
5 1/2	13.0 - 20.0	4.778-5.156	4.625	
	20.0 - 23.0	4.670-4.778	4.500	
	23.0 - 26.0	4.548-4.670	4.406	
7	17.0 - 26.0	6.276-6.538	5.969	
	26.0 - 32.0	6.094-6.276	5.875	

HydraWR Bridge Plug is deployed on wireline and set via the Wireline Adapter Kit attached to the Pressure Setting Assembly. It can alternately be lowered on Tubing and set via the Hydraulic Setting Tool connected to the Wireline Adapter Kit.



SWR™ Retrieving Tool is run in hole and latched on the **HydraWR** plug with 5 to 10k lbs set down weight. This enables the differential pressures across plug to equalize and a 10 to 15k lbs overall releases the HydraWR Bridge Plug from the casing wall for safe retrieval.

Snap Latch Stinger Sub is used to set Cement Retainers on wireline. It features a snap-in, snap-out type latch that provides a surface indication of the stinger being landed in or removed from the Cement Retainer thereby giving assurance that the sleeve valve is opened or closed.

Snap Latch Setting Tool is used to set Cement Retainers and Bridge Plugs on jointed pipe. This tool contains a built-in snap-latch feature and is released by overpull or by rotating 10 turns towards right. The run-in string can be pressure tested before release. It can easily convert to Snap Latch Stinger Sub via a simple conversion kit.

Control Unit is made up above the Stinger Sub and provides a centering device for entering the Cement Retainer bore.

Plug Plucker is used for quick milling and retrieving of permanent Bridge Plugs and Cement Retainers. This tool offers customer ability to retrieve milled out Bridge Plugs and Cement Retainers instead of pushing them down, thereby allowing high performance Bridge Plugs or Cement Retainers to be safely set above a Liner.



Snap Latch Stinger Sub



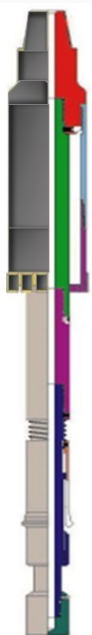
Snap Latch setting tool



Control Unit



Plug Plucker



SCJ



SCC



SCK

SAZ Oilfield Equipment offers various types of **Milling tools** to mill out and retrieve Permanent Bridge Plugs and Cement Retainers

SCJ™ Milling tool combines a Mill with an Overshot to mill over Permanent Bridge Plug / Cement Retainer and then retrieve the milled out assembly from the well.

SCC™ Milling tool is used to mill over Permanent Bridge Plugs / Cement Retainers and then push the milled out assembly to the bottom of hole.

SCK™ Milling tool combines a Mill with a Spear to mill over Permanent Bridge Plug / Cement Retainer. Once the outside portion is milled out, the Spear latches into and retrieves the plug body.