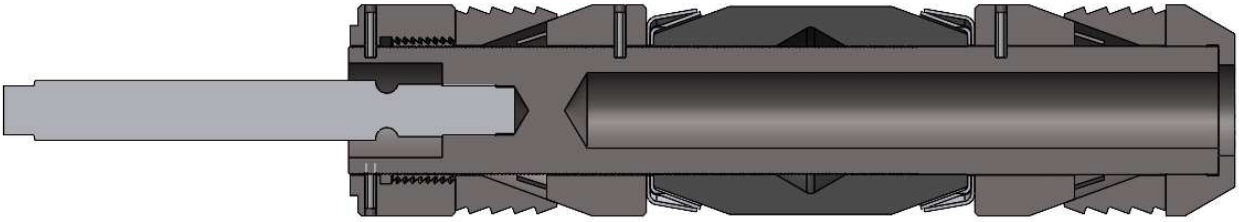
BTS (Baker Type Stud) Bridge Plug

Discover the legacy of the BTS Bridge Plug, this Made in the USA plug excels in reliability, longevity, and quality materials sourced domestically. With a wide range of tubing and casing diameters available, the BTS Bridge Plug is tailored to support diverse plugging applications with unmatched precision and performance. The BTS Bridge Plug is manufactured with drillable materials for rapid drill out.

Features:

- Baker Wireline set.
- Drillable Cast Iron construction.
- Sets in any grade casing including P-110.
- Form fitting metal back-ups prevent rubber extrusion.
- Form permanent service.
- Ratcheting lock ring holds setting force.
- Available sizes for setting range from 3.826 to 11.084 in.



3500 BTS Bridge Plug illustration.

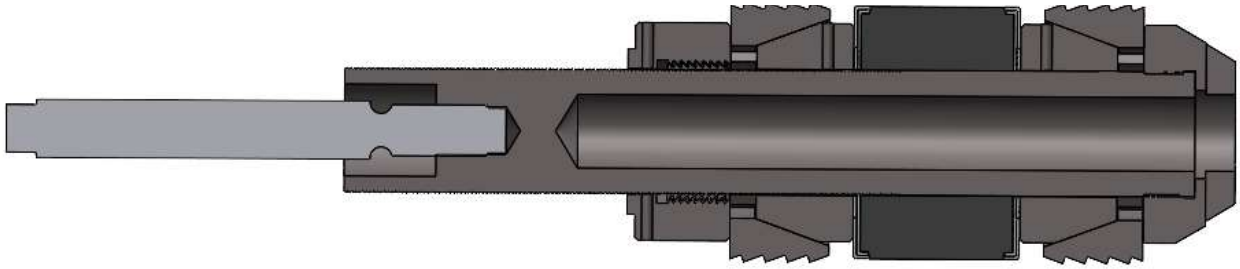
BTS & BTS 2 BRIDGE PLUG SIZE CHART

Part Number	Plug OD (in)	Setting Range Min (in)	Setting Range Max (in)	Max Pressure (psi)
000-3500-602	3.50	3.826	4.090	10,000
000-3500-604	3.50	3.826	4.090	Not Rated
000-3710-602	3.71	3.920	4.408	10,000
000-3710-604	3.71	3.920	4.408	Not Rated
000-4190-602	4.19	4.376	4.950	10,000
000-4240-602	4.24	4.548	5.012	10,000
000-4240-604	4.24	4.548	5.012	Not Rated
000-5340-602	5.34	5.626	6.094	10,000
000-5340-604	5.34	5.626	6.094	Not Rated
000-5610-602	5.61	5.921	6.538	10,000
000-5610-604	5.61	5.921	6.538	Not Rated
000-8125-602	8.71	9.282	9.760	5,000
000-9437-602	9.44	9.850	11.084	5,000

BTS & BTS 2 BRIDGE PLUG NOMENCLATURE:
XXX-XXXX-602: BTS BRIDGE PLUG
XXX-XXXX-604: BTS 2 BRIDGE PLUG (no Back-Up Rings, shorter body, shorter rubber)

HOW THE BTS BRIDGE PLUG WORKS

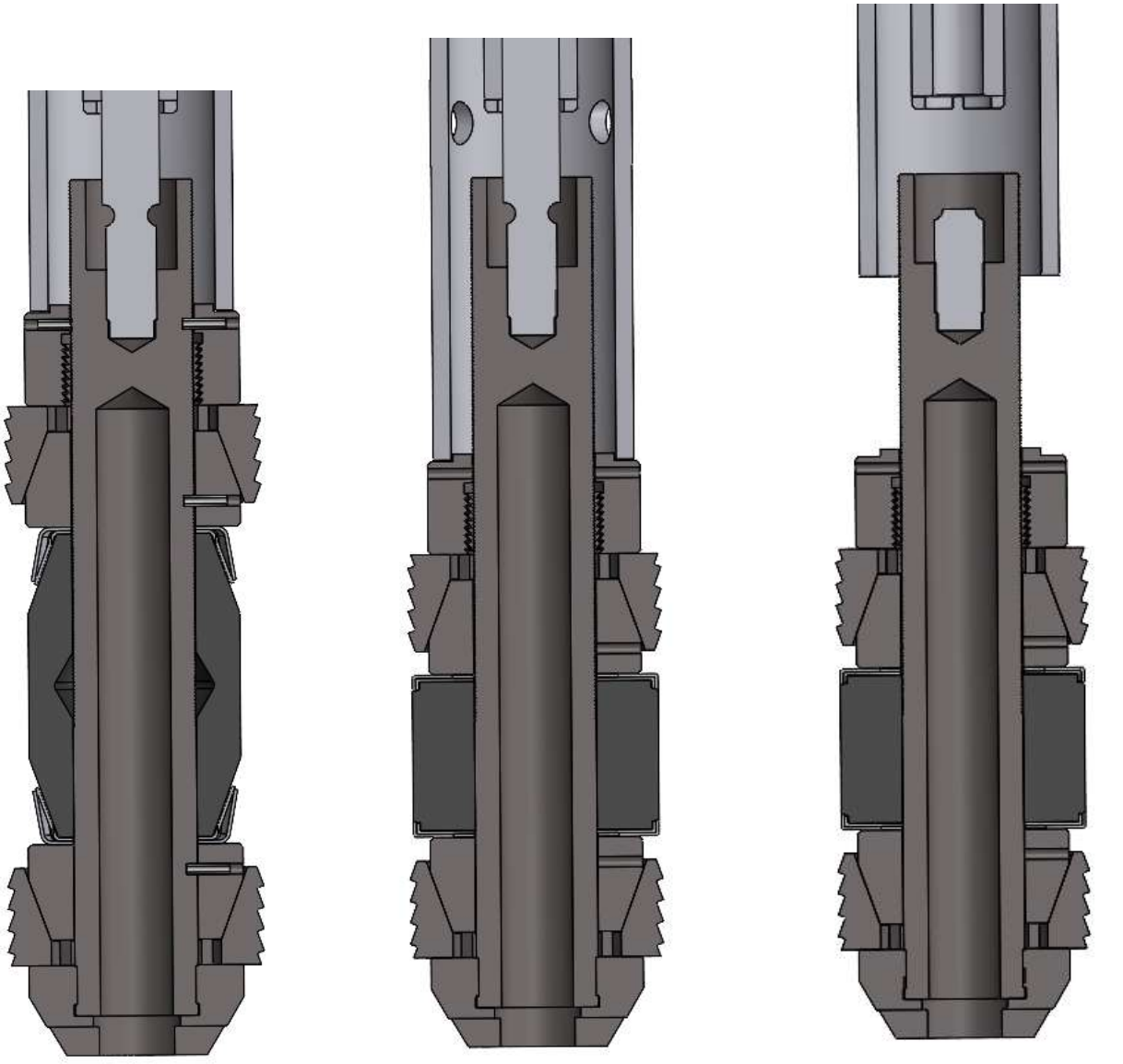
The BTS bridge plug is run into wellbore on wireline to the desired depth. The setting mechanism is triggered, causing the cone to push slips outward to grip the wellbore wall and compress the sealing element to form a tight seal. Once set, the plug isolates the wellbore sections below and above it, preventing fluid flow and pressure communication.



3710 BTS Bridge Plug Set Position illustration.

Once the BTS bridge plug is securely installed, the shear stud fractures and releases the setting tool from the plug. The slips and the lock ring will ensure that the packing element remains compressed.

RUNNING GUIDELINES

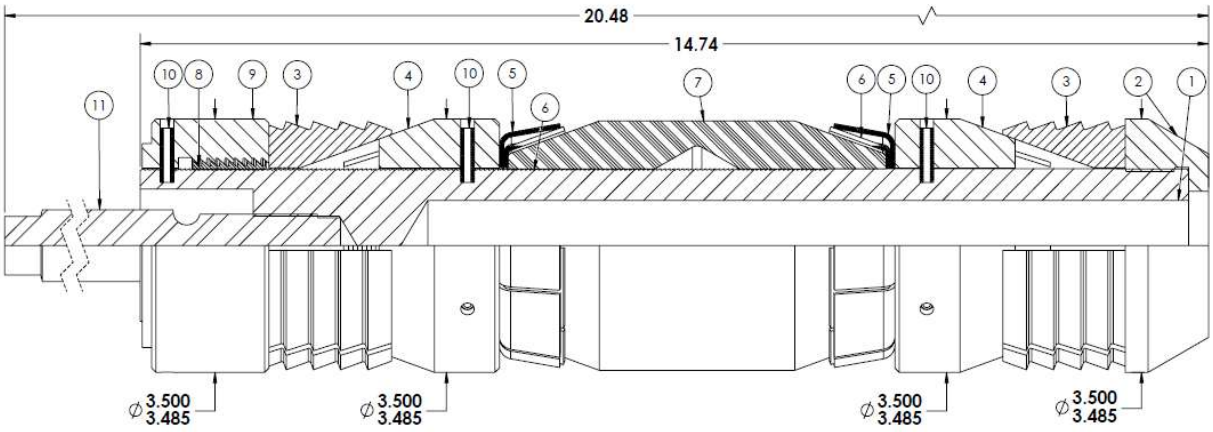


RUN IN POSITION	INCREASE PRESSURE IN SETTING TOOL TO SET BRIDGE PLUG	SHEAR STUD FRACTURES AND RELEASES BRIDGE PLUG FROM SETTING TOOL

GUIDELINES FOR RUNNING BTS BRIDGE PLUG

1. Use casing scraper before running any equipment in the well to remove scale and other materials from the casing wall. Any tool that is expected to grip the casing wall has to first reach the casing wall. Follow scraper with gage ring and junk basket.
2. Always follow cleaning, redressing and operational procedures on the setting tool. Make certain oil levels in pressure setting tool are correct for the well environment involved. Take into consideration the heat expansion of the oil in your manufacturers guidelines that should be supplied with your pressure setting tool.
3. Use the correct bridge plug for the temperature, pressure, casing size, casing weight and environment.
4. Casing should have 100% cement bond before running plug in the well.
5. Do not overtighten bridge plug onto setting tool. This action causes the slips to crack which leads to premature setting. Snug tight is sufficient for a bridge plug. The lock spring or nut, depending on make of setting tool, must accompany the tension mandrel to prevent plug from backing off.
6. Do not allow the setting tool weight to rest on the bridge plug after making up. This can cause the slips to crack.
7. Help guide the setting tool and bridge plug through lubricators, wellhead and blowout preventer. When running under pressure raise tools to the top of lubricator before equalizing the pressure into lubricator.
8. Running speed should not exceed 300 feet per minute to avoid fluid displacement cutting on elastomer. Should setting tool misfire, retrieve equipment no faster than it went in. Slow down for liners and other restrictions.
9. Never set plug in casing collar or where milling has occurred.
10. Always set plugs in static well conditions (no fluid or gas movement).
11. Shock to the plug can result in failure. Warn service companies of the plug depth to avoid high impact collisions. When using the plug for locating purposes, be gentle and ease tools onto plug. Never place tubing weight on plug.
12. Pressure setting tool failure can result from several causes (ex: out of date power charge or bad O-ring). In the event that a pressure setting tool does not shear off of the bridge plug and you have to pull out of the rope socket, the shear stud will still part in a normal manner when the setting tool is fished out. This happens most commonly because the power charge did not put up sufficient pressure to shear the stud in the plug. The Alpha studs are made to shear correctly and are held to high standards of accuracy. When the fishing tool goes in to retrieve the setting tool, you can watch the accuracy of the shear stud when it shears, assuming that the weight indicator is not out of calibration.
13. When perforating, bridge plug should be protected with a minimum of ten feet of cement dumped directly on top of plug. Cement should be given sufficient time to set up before perforating.
14. Perforating should not be done closer than fifty feet of bridge plug.
15. Always remove security roll pin (above top slip) when installing Bridge Plug on the Setting Tool.

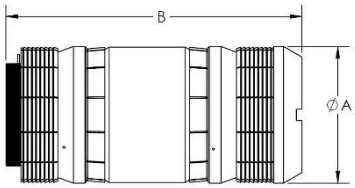
BTS BRIDGE PLUG PARTS LIST



ITEM NO.	PART NUMBER	ALPHAPARTNAME	QTY.
1	000-3500-025	BODY	1
2	002-3500-038	SHOE	1
3	003-3500-011	SLIP	2
4	003-3500-009	CONE	2
5	000-3500-016	OUTER METAL BACK-UP	2
6	000-3500-015	INNER METAL BACK-UP	2
7	000-3500-034	PACKING ELEMENT	1
8	000-3500-013	LOCK RING	1
9	000-3593-012	LOCK RING BACK-UP	1
10	RP0187X750	ROLL PIN	8
11	000-3593-021	SHEAR STUD (30K)	1

3500 BTS Bridge Plug illustration.

BTS BRIDGE PLUG
DIMENSIONAL DATA



PART NUMBER	DIM. "A"	DIM. "B"	SETTING TOOL	SETTING SLEEVE	SHEAR STUD VALUE
000-3500-602	3.50	20.48	#10	005-3593-200	30,000 LBS
000-3500-604	3.50	18.84	#10	005-3593-200	30,000 LBS
000-3710-602	3.71	20.90	#10	005-3593-200	30,000 LBS
000-3710-604	3.71	19.23	#10	005-3593-200	30,000 LBS
000-4190-602	4.19	17.12	#20	005-4190-200	30,000 LBS
000-4240-602	4.24	17.12	#20	005-4312-200	30,000 LBS
000-4240-604	4.24	15.75	#20	005-4312-200	30,000 LBS
000-5340-602	5.34	18.72	#20	005-5687-200	50,000 LBS
000-5340-604	5.34	18.12	#20	005-5687-200	50,000 LBS
000-5610-602	5.61	18.72	#20	005-5687-200	50,000 LBS
000-5610-604	5.61	18.12	#20	005-5687-200	50,000 LBS
000-8125-602	8.13	27.19	#20	005-8125-200	50,000 LBS
000-9437-602	9.44	28.71	#20	005-9437-200	50,000 LBS

Elastomer Compatibility Guideline Table:

Elastomer Type	Nitrile (NBR)	Hydrogenated Nitrile (HNBR / HSN)	Viton / Fluoroelastomer (FKM)	Aflas (TFE/P)
Low Temp Resistance, °F	-4	-4	5	100
Maximum Heat Resistance, °F	250	300	350	400
H_2S	Very Poor (<0.5%)	Poor (<1%)	Fair (<2%)	Very Good (<20%)
CO_2	Poor (<1%)	Fair (<2%)	Very Good (Unrestricted)	Very Good (Unrestricted)
Amine Inhibitors	Very Poor (Not Recommended)	Very Poor (Not Recommended)	Very Poor (Not Recommended)	Very Good (Unrestricted)
Zn & Ca Bromides	Very Poor (Not Recommended)	Very Poor (Not Recommended)	Very Good (Unrestricted)	Good
Xylene	Very Poor (Not Recommended)	Very Poor (Not Recommended)	Fair	Very Poor (Not Recommended)
HCl & HF Acid	Very Poor (Not Recommended)	Very Poor (Not Recommended)	Fair	Good
Toluene	Very Poor (Not Recommended)	Poor	Fair	Very Poor (Not Recommended)
Sulfuric Acid	Very Poor (Not Recommended)	Poor	Good	Good
Steam	Very Poor (Not Recommended)	Poor	Poor	Poor
Crude Oil	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)
Methane	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)
KCl & Salt Water	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)

Recommended Drillout/Millout of Cast Iron Bridge Plugs or Cement Retainers

General

Preferred method is drilling with medium steel tooth tri-cone bit as it is usually faster than mill- out time for same bridge plug or cement retainer. Drilling results in a chiseling effect, where milling is more of a grinding or shaving effect of the targeted tool. Milling out also results in more debris that can hinder penetration as well as circulation to clear the targeted tool face. History has shown that utilizing a short to medium tooth hard formation rock bit to yield the best results.

Suggested Drilling Techniques

While best methods vary based on equipment, depth of objective, or other factors, Alpha Oil Tools suggests rock bit as suggested above with a rotary speed 75-120 RPM. Use drill collars as required to maintain necessary weight and bit stabilization.

To drill the bridge plug or cement retainer:

1. Apply 5000-7000 pounds until the top end of the retainer/plug mandrel is drilled (4-5 inches).
2. Increase weight to 2000-3000 pounds per inch of bit diameter to complete the drill out. For example, apply 9500 up to 14,250 pounds when using a 4.75-inch bit.

When circulating normally, place a junk basket above the bit. If using reverse circulation, any casing scraper or other equipment above the bit should have an inside fluid passage at least as large as that through the bit so as to allow any/all cuttings to be circulated clear. Utilize varying RPM's and weight on bit to optimize drill out, especially if getting indications that penetration by the bit has slowed or stopped. Loss of penetration may occur by "bit tracking" usually caused by too little weight on the bit. Besides changing weight and RPM's, bit tracking can be overcome by picking up the bit above the retainer, then re-engaging the objective while maintaining same RPM's as before.

Drilling times are directly related to tool size, bit stability, bit type, weight/RPM's on bit, wellbore fluids, and pump rate/pressure. High viscosity fluids combined with high pump rates may result in sufficient hydraulic force and cause the bit to lift off the objective.

Suggested Milling Technique

If conditions mandate milling be used as the preferred removal method, it is recommended to use a concave junk mill, 60-150 RPM maintaining 5000-8000 pounds on the mill. Use a mud viscosity 60 cps with a minimum annular velocity of 120 ft/min for cuttings removal.

When ready to begin milling, start the mill above the target then slowly lower to the objective. Do not apply excess weight since this can cause "chunking" which will not allow cuttings removal and then slow the millout. If chunking does occur, it will be necessary for a bailer or junk basket to remove chunked debris before milling can resume. A constant milling rate will require added weight as milling progresses.