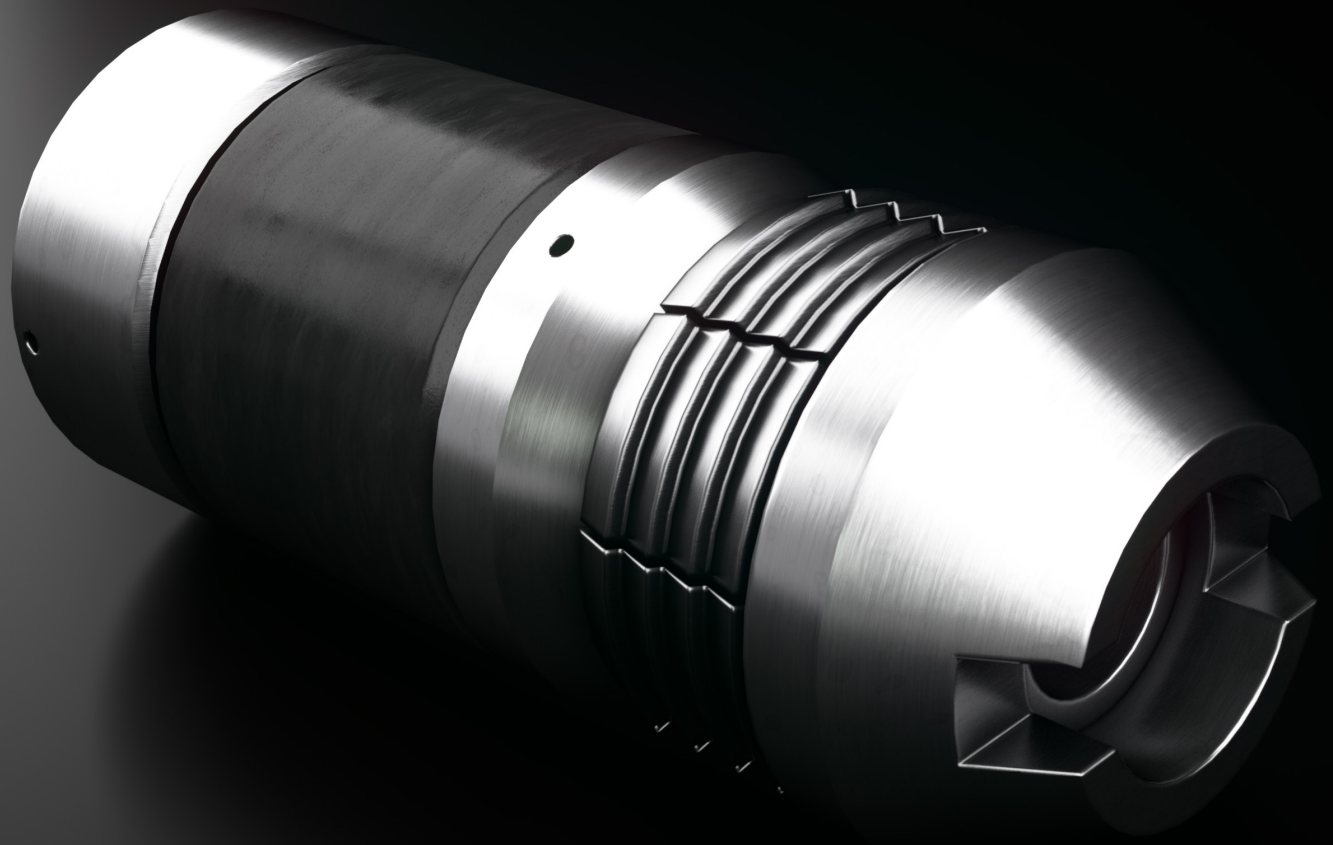
GEODynamics®



CAST IRON COMPLETIONS CATALOG

ISSUE 1 – February 12, 2025

About GEODynamics

GEODynamics, Inc. is the global technology and manufacturing leader in perforating, downhole completion, intervention, and wireline-conveyed solutions. GEODynamics creates and delivers downhole solutions that enable unsurpassed well economics, performance, and lifespan.

Patents

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Terms and Conditions

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Revisions

ISSUE	DATE	NOTES
1	June 25, 2021	Issue 1 released for 2021, revises the initial release (Dec. 2020) with the following changes: Clarified specifications for wireline set 16" and 20" OD casing bridge plugs and cement retainer. Added redress kit, bleeder valve kit, and setting tool crossover details to BK10, BK20, and Compact Setting Tool topics. Added new catalog page for Model CRSS-MS Sleeve Valve Cement Retainer Squeeze and Shoot (mechanical set). Pull and setting forces updated for Model H-M Hydro-Mechanical bridge plug. Added new catalog pages for Seal Nipples. As appropriate throughout, incorporated minor edits, part number corrections, and image updates.
2	October 4, 2021	Issue 2: Added GN-RX31-BK20-GG crossover details to BT-20 Setting Tool topic.
1	February 12, 2025	Issue 1, 2025. Added Mighty Max Isolation Plug (wireline set). Added Economy Power Charges. Minor updates and edits throughout.

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Cast Iron Zonal Isolation - Wireline Set
Mighty Max™ Isolation Plug

GEODynamics' Mighty Max™ isolation plugs provide an excellent economical option when you require isolation barriers to set cement plugs in your well.

The compact design delivers excellent running characteristics and dependable sets when run with industry standard electric wireline pressure setting tools. The short cast iron design maintains sufficient strength while set to support large high-pressure columns of fluid above at elevated temperatures, and also facilitates a rapid drill-out operation.

APPLICATIONS

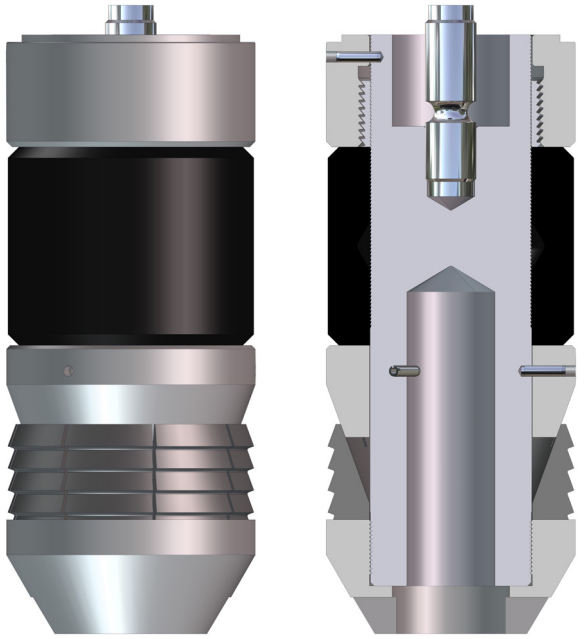
- Plug and Abandonment
- Temporary or Permanent Zone Isolation

FEATURES, ADVANTAGES, AND BENEFITS

- Cast iron construction
- Short compact design
- Sets in any grade casing including P-110
- Ratcheting lock ring holds setting force
- One-piece slip design reduces pre-sets
- Designed for rapid drill-out
- 5K pressure rating
- Temperature rating to 325° F
- Uses industry-standard wireline setting tools
- For temporary or permanent service

SPECIFICATIONS

CASING		PLUG		SETTING RANGE		SETTING TOOL	
OD	WT. (LBS/FT)	PART NUMBER	OD	MIN.	MAX.	BAKER	GO
4-1/2	9.5 - 16.6	000-3500-005	3.50	3.826	4.090	10	3-1/2
5-1/2	13 - 25	000-4240-005	4.24	4.580	5.047	20	3-1/2
7	17 - 35	000-5610-005	5.61	5.989	6.655	20	3-1/2



Mighty Max Isolation Plug
000-4240-005 (shown)

Cast Iron Zonal Isolation - Wireline Set
Model HPBP High Pressure Bridge Plug

Model HPBP bridge plugs deliver excellent running characteristics, secure sets, and proven dependability. Designed for rapid drill-out while maintaining sufficient strength during the set, these plugs also sustain high pressures and temperatures.

FEATURES

- Cast iron construction
- Electric wireline set with various pressure setting tools
- Sets in any grade casing including P-110
- One piece slips *(hardened to depth of wicker only)*
- Drillable
- Form-fitting metal back-ups prevent rubber extrusion
- Ratcheting lock ring holds setting force
- For temporary or permanent service

SPECIFICATIONS

CASING		PLUG		SETTING RANGE		SETTING TOOL	
OD	WT. (LBS/FT)	PART NUMBER	OD	MIN.	MAX.	BAKER	GO
2-3/8	3.3 - 5.9	000-1710-002	1.71	1.867	2.107	5	
2-3/8	3.3 - 5.9	000-1710-000	1.71	1.867	2.107		1-11/16
2-7/8	6.4 - 6.5	000-2100-002	2.10	2.280	2.563	5	
2-7/8	6.4 - 6.5	000-2100-000	2.10	2.280	2.563		1-11/16
2-7/8	6.4 - 6.5	000-2100-000	2.10	2.280	2.563		2-1/8
3-1/2	5.7 - 10.2	000-2750-002	2.75	2.867	3.258	5	
3-1/2	5.7 - 10.2	000-2750-000	2.75	2.867	3.258	10	
3-1/2	5.7 - 10.2	000-2750-000	2.75	2.867	3.258		1-11/16
3-1/2	5.7 - 10.2	000-2750-000	2.75	2.867	3.258		2-1/8
4	5.6 - 14	000-3120-002	3.12	3.340	3.732	10	2-1/8
4-1/2	9.5 - 16.6	000-3500-002	3.50	3.826	4.090	10	3-1/2
4-1/2	9.5 - 13.5	000-3710-002	3.71	3.920	4.560	10	3-1/2
5	11.5 - 21	000-3710-002	3.71	3.920	4.560	10	3-1/2
5-1/2	13 - 25	000-4240-002	4.24	4.580	5.047	20	3-1/2
5-3/4	22.5 - 25.2	000-4240-002	4.24	4.580	5.047	20	3-1/2
6	14 - 26	000-4750-002	4.75	5.140	5.595	20	3-1/2
6-5/8	34	000-4750-002	4.75	5.140	5.595	20	3-1/2
6	10.5 - 12	000-5340-002	5.34	5.595	6.366	20	3-1/2
6-5/8	17 - 34	000-5340-002	5.34	5.595	6.366	20	3-1/2
7	23 - 40	000-5340-002	5.34	5.595	6.366	20	3-1/2
6-5/8	17 - 22	000-5610-002	5.61	5.989	6.655	20	3-1/2
7	17 - 35	000-5610-002	5.61	5.989	6.655	20	3-1/2
7-5/8	20 - 39	000-6090-002	6.09	6.625	7.263	20	3-1/2
8-5/8	24 - 49	000-6960-002	6.96	7.511	8.248	20	3-1/2
9-5/8	29.3 - 53.5	000-7710-002	7.71	8.435	9.063	20	3-1/2
10-3/4	54 - 81	000-8710-002	8.71	9.250	9.784	20	3-1/2
10-3/4	32.7 - 51	000-9500-002	9.50	9.850	11.150	20	3-1/2
11-3/4	38 - 60	000-9500-002	9.50	9.850	11.150	20	3-1/2
13-3/8	77 - 102	000-1156-002	11.56	11.633	12.464	20	3-1/2
13-3/8	48 - 72	000-1200-002	12.00	12.347	12.715	20	3-1/2

For 16" and 20" casing, refer to specifications for Model BP-WS Bridge Plug.

AVAILABLE FOR 2-3/8" TO 20" CASING

DIMENSIONAL DATA

PLUG SIZE O.D.	FIG.	A	B	C	D	E	F	G	H	J	K
1.71 GO	1	1.710	1.656	1.687	1.687	1.093	3.390	3.218	3.078	9.687	12.000
1.71 Baker	1	1.710	1.656	1.687	1.687	1.093	3.390	3.218	3.078	9.687	15.875
2.10 GO	1	2.100	2.031	2.062	2.062	1.250	3.296	3.812	2.796	9.906	12.218
2.10 Baker	1	2.100	2.031	2.062	2.062	1.250	3.296	3.812	2.796	9.906	16.093
2.75 GO	2	2.750	2.671	2.687	2.687	1.500	2.453	5.093	4.078	11.843	14.155
2.75 Baker	2	2.750	2.671	2.687	2.687	1.500	2.453	5.093	4.078	11.843	18.030
3.12	2	3.120	3.062	3.062	3.062	1.875	2.390	5.250	3.952	11.843	15.718
3.50	1	3.500	3.421	3.437	3.437	2.125	4.921	5.470	4.733	15.155	15.655
3.71	1	3.710	3.625	3.648	3.648	2.125	4.921	5.470	4.733	15.155	15.655
4.24	1	4.240	4.187	4.187	4.187	2.750	4.872	5.390	5.028	15.343	15.843
4.75	1	4.750	4.687	4.687	4.687	2.750	4.872	5.390	5.028	15.343	15.843
5.34	1	5.340	5.281	5.260	5.260	3.687	5.932	7.250	5.932	19.124	**
5.61	1	5.610	5.562	5.546	5.546	3.687	5.932	7.250	5.932	19.124	**
6.09	2	6.090	6.015	5.968	5.968	4.125	3.860	8.859	7.132	20.250	**
6.96	2	6.960	6.875	6.843	6.843	4.625	4.900	9.796	7.400	22.500	**
7.71	2	7.710	7.640	7.593	7.593	5.125	5.125	10.046	7.625	23.187	**
8.71	2	8.710	8.640	8.593	8.593	5.687	4.867	10.562	8.235	24.063	**
9.50	2	9.500	9.375	9.375	9.375	6.750	5.644	10.562	9.011	25.594	**
11.56	2	11.56	11.437	11.437	11.437	9.000	5.750	10.609	8.250	25.969	**
12.00	2	12.00	11.875	11.875	11.875	9.000	5.750	10.609	8.250	25.969	**
14.25	2	14.25	14.125	14.125	14.125	11.500	6.985	8.859	10.235	26.562	**
17.25	2	17.25	17.125	17.125	17.125	14.000	6.901	7.609	9.401	25.125	**

** The second column indicates which illustration to reference for plug dimensioning (Figure 1 or Figure 2).*
*** The shear stud on these sizes does not extend above the top of the body.*
Some sizes differ slightly from the illustrations shown.

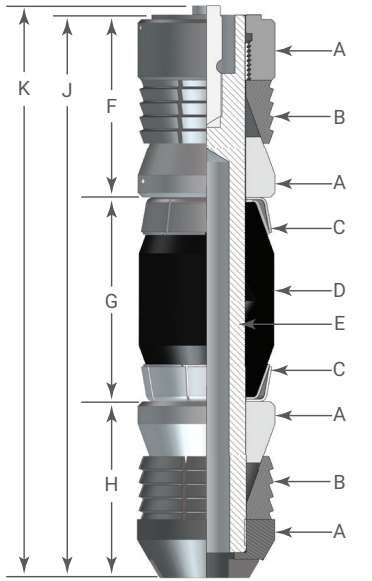


FIGURE 1: P/N 000-3710-002 IS SHOWN

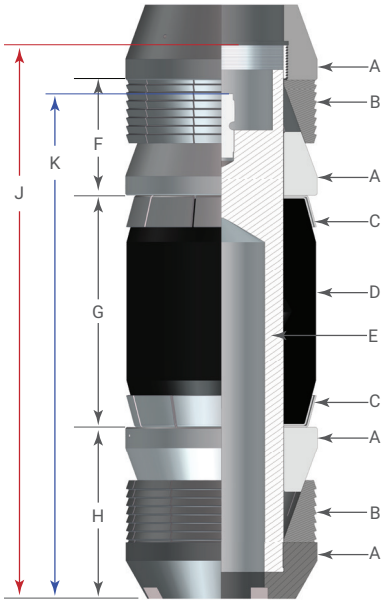


FIGURE 2: P/N 000-8710-002 IS SHOWN

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Cast Iron Zonal Isolation - Wireline Set
Model BP-WS Bridge Plug

Model BP-WS Cast Iron Drillable Bridge Plug's modular, field-proven design makes it a versatile tool in a variety of applications. The BP-WS may be set on a wireline setting tool or set mechanically by changing the top slips. The BP-WS also converts to an CR-WS Cement Retainer by replacing the solid plug with a sleeve valve.

BP-WS WIRELINE SET

APPLICATIONS

- Well Abandonment
- Temporary or Permanent Zone Isolation

FEATURES, ADVANTAGES, AND BENEFITS

- Cast iron drillable design
- Converts to a Model CR Cement Retainer
- Converts between mechanical set or wireline set by changing top slips
- Fast drill out saves rig time
- Temperature rating to 325° F
- Differential pressure rating to 10,000 psi thru 7 5⁄8"
- Convertability reduces inventory requirements

SPECIFICATIONS

CASING		PLUG		SETTING RANGE		SETTING TOOL	
OD	WT. (LBS/FT)	PART NUMBER	OD	MIN.	MAX.	BAKER	GO
4-1/2	9.5 - 16.6	005-3593-003	3.593	3.826	4.090	10	3-1/2
5	11.5 - 18	005-3937-003	3.937	4.154	4.560	10	3-1/2
5-1/2	13 - 23	005-4312-003	4.312	4.580	5.044	20	3-1/2
6	10.5 - 12	005-5375-003	5.375	5.959	6.135	20	3-1/2
6-5/8	17 - 34	005-5375-003	5.375	5.959	6.135	20	3-1/2
7	32 - 38	005-5375-003	5.375	5.959	6.135	20	3-1/2
7	17 - 35	005-5687-003	5.687	6.004	6.538	20	3-1/2
7-5/8	20 - 39	005-6312-003	6.312	6.625	7.263	20	3-1/2
8-5/8	24 - 49	005-7125-003	7.125	7.511	8.248	20	3-1/2
9-5/8	29.3 - 53.5	005-8125-003	8.125	8.435	9.063	20	3-1/2
10-3/4	54 - 81	005-9000-003	9.000	9.250	9.660	20	3-1/2
10-3/4	32.7 - 51	005-9437-003	9.437	9.660	10.192	20	3-1/2
13-3/8	77 - 102	005-1156-003	11.562	11.633	12.464	20	3-1/2
13-3/8	48 - 72	005-1200-003	12.000	12.175	12.715	20	3-1/2
16	65 - 109	005-1425-003	14.25	17.655	18.730	*20	N/A
20	133 - 169	005-2000-003	18.375	18.730	19.124	*20	N/A

**Preference for 16" and 20" OD is a hydraulic setting tool with crossover to Baker 20 adapter kit.*

Cast Iron Zonal Isolation - Wireline Set
Model CR-WS Sleeve Valve Cement Retainer

Model CR-WS Cast Iron Drillable Cement Retainer's modular, field-proven design makes it a versatile tool in a variety of applications. The Sleeve Valve Cement Retainer (SVCR) may be set on a wireline setting tool or set mechanically by changing the top slips. The SVCR also converts to an BP Bridge Plug by replacing the sleeve valve with a solid plug.

AVAILABLE FOR 4-1/2" TO 20" CASING
Also Available in Mechanical Set

APPLICATIONS

- Cementing
- Stimulation
- Well Abandonment
- Temporary or Permanent Zone Isolation

FEATURES, ADVANTAGES, AND BENEFITS

- Cast iron drillable design
- Converts to a Model BP Bridge Plug
- Converts between mechanical set or wireline set by changing top slips
- Temperature rating to 325° F
- Differential pressure rating to 10,000 psi thru 7 5⁄8"
- Simple, surface-controlled valve automatically closes when the stinger is removed
- Allows pressure testing before squeeze
- Valve protects sensitive zones in low-fluid wells
- Fast drill out saves rig time
- Convertability reduces inventory requirements

SPECIFICATIONS

CASING		PLUG		SETTING RANGE		SETTING TOOL	
OD	WT. (LBS/FT)	PART NUMBER	OD	MIN.	MAX.	BAKER	GO
4-1/2	9.5 - 16.6	005-3593-002	3.593	3.826	4.090	10	3-1/2
5	11.5 - 18	005-3937-002	3.937	4.154	4.560	10	3-1/2
5-1/2	13 - 23	005-4312-002	4.312	4.580	5.044	20	3-1/2
6	10.5 - 12	005-5375-002	5.375	5.959	6.135	20	3-1/2
6-5/8	17 - 34	005-5375-002	5.375	5.959	6.135	20	3-1/2
7	32 - 38	005-5375-002	5.375	5.959	6.135	20	3-1/2
7	17 - 35	005-5687-002	5.687	6.004	6.538	20	3-1/2
7-5/8	20 - 39	005-6312-002	6.312	6.625	7.263	20	3-1/2
8-5/8	24 - 49	005-7125-002	7.125	7.511	8.248	20	3-1/2
9-5/8	29.3 - 53.5	005-8125-002	8.125	8.435	9.063	20	3-1/2
10-3/4	54 - 81	005-9000-002	9.000	9.250	9.660	20	3-1/2
10-3/4	32.7 - 51	005-9437-002	9.437	9.660	10.192	20	3-1/2
13-3/8	77 - 102	005-1156-002	11.562	11.633	12.464	20	3-1/2
13-3/8	48 - 72	005-1200-002	12.000	12.175	12.715	20	3-1/2
16	65 - 109	005-1425-002	14.25	17.655	18.730	*20	N/A
20	133 - 169	005-2000-002	18.375	18.730	19.124	*20	N/A

**Preference for 16" and 20" OD is a hydraulic setting tool with crossover to Baker 20 adapter kit.*

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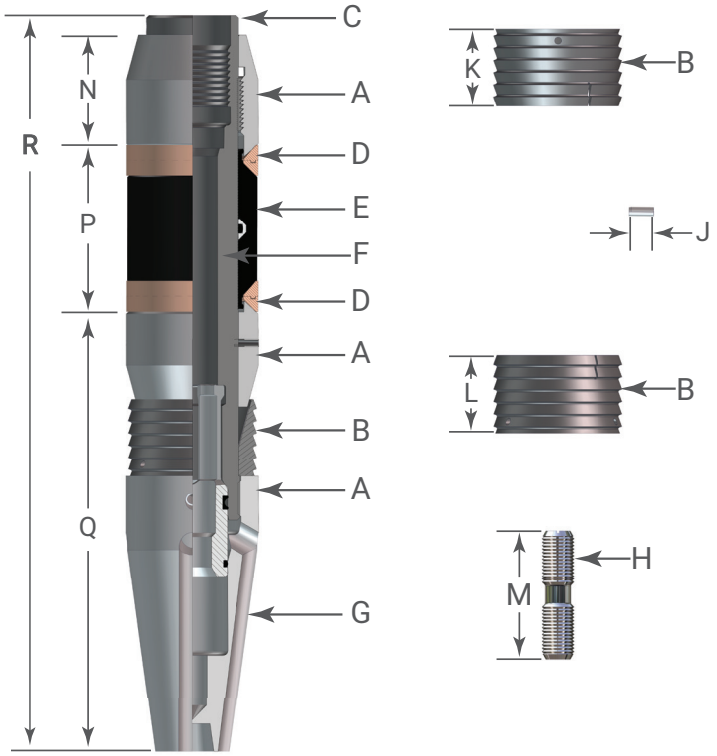
Cast Iron Zonal Isolation - Wireline Set
Model CR-WS Sleeve Valve Cement Retainer

GEODynamics®

DIMENSIONAL DATA

RETAINER O.D.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
3.593	3.593	3.500	2.500	3.531	3.531	1.345	3.375	0.875	0.437	3.187	2.187	6.750	2.437	5.312	11.687	20.312
3.937	3.937	3.875	2.500	3.875	3.875	1.345	3.375	0.875	0.437	3.187	2.187	6.750	2.437	5.125	11.840	20.312
4.312	4.312	4.250	2.750	4.187	4.187	1.345	3.375	0.875	0.750	3.562	2.750	6.750	3.187	5.390	10.840	20.312
5.375	5.375	5.312	3.687	5.260	5.260	2.000	4.500	1.000	0.750	3.781	2.562	3.500	2.687	7.250	11.526	21.968
5.687	5.687	5.625	3.687	5.546	5.546	2.000	4.500	1.000	0.750	3.781	2.562	3.500	2.687	7.250	11.526	21.968
6.312	6.312	6.250	4.125	5.968	5.968	2.000	4.500	1.000	0.750	5.000	2.875	3.500	3.062	8.859	11.928	22.062
7.125	7.125	7.062	4.625	6.843	6.843	2.000	4.500	1.000	0.750	4.062	2.500	3.500	2.750	9.796	11.928	22.062
8.125	8.125	8.000	5.125	7.593	7.593	2.000	4.500	1.000	1.250	3.875	3.062	3.500	3.062	10.046	13.720	22.781
9.437	9.437	9.375	6.750	9.375	9.375	2.000	4.500	1.000	1.250	4.062	2.812	3.500	3.500	10.562	9.886	23.312
12.00	12.00	11.750	9.000	11.875	11.875	2.000	4.500	1.000	1.250	4.375	3.312	3.500	4.625	10.609	8.250	23.843
14.25	14.25	14.125	11.500	14.125	14.125	2.000	4.500	1.000	1.250	4.375	3.250	3.500	3.625	8.750	9.250	23.375

The figures contained herein are subject to change without notice.
Some sizes differ slightly from the illustrations shown.



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Patents: www.oilstatesintl.com/patents

RUNNING GUIDELINES FOR HIGH PRESSURE (HPBP), LOW PRESSURE (LPBP), AND CONVERTIBLE BP

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 must first reach the casing wall. Follow scraper with gage ring and junk basket.
2. Always follow cleaning, redressing, and operational procedures on the setting tools. Use GEODynamics power charges or a slow burn power charge in electric line setting tools. Contact us for specific application requirements. Make certain oil levels in pressure setting tools are correct for the well environment involved. Take into consideration the heat expansion of the oil in your manufacturer's guidelines that should be supplied with your wireline pressure setting tool.
3. Use the correct bridge plug for the temperature, pressure, casing size, casing weight, and environment.

HIGH PRESSURE BRIDGE PLUG (HPBP)	PRESSURE	TEMPERATURE
2 3/8" tubing thru 7 5/8" casing (1.71 – 6.09 plugs)	10,000 psi	325˚ F
8 5/8" thru 9 5/8" casing (6.96 – 7.71 plugs)	8,000 psi	300˚ F
10 3/4" thru 113/4" casing (8.71 – 9.50 plugs)	5,000 psi	300˚ F
13 3/8" casing (11.56 – 12.0 plugs)	3,000 psi	300˚ F
16" casing (14.25 plugs)	2,000 psi	200˚ F
18 5/8" thru 20" casing (17.25 plugs)	2,000 psi	200˚ F

LOW PRESSURE BRIDGE PLUG (LPBP)	PRESSURE	TEMPERATURE
2 3/8" tubing thru 7" casing (1.71 – 5.61 plugs)	6,000 psi	200˚ F

4. Casing should have 100% cement bond before running plug in the well.
5. Do not over-tighten 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 slip 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 the plug. Never place tubing weight on a plug.
12. Wireline setting tools, which rely on internal pressure to make the setting tool function, can fail for various reasons (e.g., a bad o-ring or an incorrect volume of oil in the chamber).

RUNNING GUIDELINES FOR HIGH PRESSURE (HPBP), LOW PRESSURE (LPBP), AND CONVERTIBLE BP, (CONT.)

When 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 after the setting tool is fished out. This happens most commonly because sufficient pressure was not applied to shear the stud in the plug.

Our studs are designed to shear correctly and are held to high standards of accuracy. When the fishing tools 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. Shear values are listed as follows:

SIZE OF PLUG (O.D.)	SHEAR STUD VALUE
1.710” thru 2.750”	12,000 lbs.
3.120”	25,000 lbs.
3.500” thru 4.750”	30,000 lbs.
5.340” thru 12.000”	50,000 lbs.

13. When perforating above a plug, the 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 within fifty feet of the bridge plug.

RUNNING GUIDELINES FOR CONVERTIBLE CEMENT RETAINERS (CR)

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 must 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. Use Legacy® Oil Tools power charges or a slow burn power charge in electric line setting tools. Contact us for specific application requirements. Make certain oil levels in pressure setting tools are correct for the well environment involved. Take into consideration the heat expansion of the oil in your manufacturer's guidelines that should be supplied with your wireline pressure setting tool.
3. Use the correct cement retainer for the temperature, pressure, casing size, casing weight, and environment.

SLEEVE VALVE CEMENT RETAINER	PRESSURE	TEMPERATURE
4 1/2" thru 7 5/8" casing (3.593 – 6.312 Model B)	10,000 psi	325˚ F
8 5/8" thru 9 5/8" casing (7.125 – 8.125 Model B)	8,000 psi	300˚ F
10 3/4" thru 11 3/4" casing (9.000 – 10.437 Model B)	5,000 psi	300˚ F
13 3/8" casing (11.562 – 12.000 Model B)	3,000 psi	300˚ F

4. Casing should have 100% cement bond before running cement retainer in the well.
5. Do not over-tighten cement retainer onto setting tool. This action causes the slips to crack which leads to premature setting. Snug tight is sufficient for a cement retainer. 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 cement retainer after making up. This can cause the slips to crack.
7. Help guide the setting tool and cement retainer 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 retainer in casing collar or where milling has occurred.
10. Always set retainer in static well conditions (no fluid or gas movement).
11. Shock to the retainer can result in failure. Warn service companies of the retainer depth to avoid high impact collisions. Never use a cement retainer for a reference point (taggjng) before the cement job is completed.
12. Wireline setting tools, which rely on internal pressure to make the setting tool function, can fail for various reasons (e.g., a bad o-ring or an incorrect volume of oil in the chamber).

RUNNING GUIDELINES FOR CONVERTIBLE CEMENT RETAINERS, (CONT.)

When a pressure setting tool does not shear off of the cement retainer and you have to pull out of the rope socket, the shear stud will still part in a normal manner after the setting tool is fished out. This happens most commonly because sufficient pressure was not applied to shear the stud in the retainer.

Our studs are designed to shear correctly and are held to high standards of accuracy. When the fishing tools 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. Shear values are listed as follows:

SIZE OF PLUG (O.D.)	SHEAR STUD VALUE
1.710" thru 2.750"	12,000 lbs.
3.120"	25,000 lbs.
3.593" thru 4.937" Model B	30,000 lbs.
5.374" thru 12.000" Model B	50,000 lbs.

13. When perforating above a cement retainer, the retainer should be protected with a minimum of ten feet of cement dumped directly on top of the retainer. Cement should be given sufficient time to set up before perforating.
14. Perforating should not be done within fifty feet of the cement retainer without putting a minumum of 10 ft. of hard cement on the retainer.
15. Make seal nipple up on a 4ft. tubing sub (if available); if not, use stop collar to prevent centralizer from moving up the full length of tubing joint.

    Centralizer should not be more than 10 ft. from top of seal nipple. Go in hole at normal speed. Be sure and strap the tubing and keep accurate measurements. When the seal nipple assembly has been lowered to approximately 200 ft. above the cement retainer, slow down and ease tubing in the hole, being careful not to run into the cement retainer. After top of cement retainer has been tagged with seal nipple assembly, lower seal nipple into retainer until 10,000 lbs. down force has been applied.

    To test tubing, raise tubing until all tubing weight is picked up and a slight pull on tubing is encountered. Pressure can be applied to tubing for tubing test. After test is completed release pressure.

Cast Iron Zonal Isolation - Wireline Set
Extra Range Bridge Plug

The Extra Range Bridge Plug is a specialty plug for running through restrictions and then setting securely in larger diameters below. These restrictions, such as seating nipples, often force tubing to be pulled before well service can take place. The Extra Range Bridge Plug eliminates this in many cases.

Should the plug require removal, milling is the recommended option. A plug of such a broad setting range requires it to be made of mild steels and a milling process is more acceptable.

FEATURES, ADVANTAGES, AND BENEFITS

- Electric wireline set
- Millable
- Sets in any grade casing including P-11O
- For temporary or permanent service
- Ratcheting lock ring holds setting force
- Runs through restrictions to set in larger diameters

SPECIFICATIONS

PLUG		SETTING RANGE		SETTING TOOL
PART NUMBER	OD	MIN.	MAX.	GO STYLE
001-1406-000	1.406	1.610	1.995	1-1/2 Shorty
001-1750-000	1.750	1.905	2.441	1-11/16 Multi-Stage
001-1906-000	1.906	2.156	2.765	1-11/16 Multi-Stage
001-2187-000	2.187	2.375	3.000	2-1/8 Multi-Stage
001-2281-000	2.281	2.441	3.343	2-1/8 Multi-Stage
001-2500-000	2.500	2.875	3.500	2-1/8 Multi-Stage
001-2750-000	2.750	3.187	3.920	2-1/8 Multi-Stage

AVAILABLE IN 1.406” TO 2.75” OD

Cast Iron Zonal Isolation - Wireline Set

Selection and Hardware for Wireline Set Bridge Plugs and Cement Retainers

GEODynamics®

WIRELINE SET BRIDGE PLUGS

CASING		PLUG		SETTING RANGE		SETTING FORCE (lbs)	BAKER STYLE SETTING EQUIPMENT							GO STYLE SETTING EQUIPMENT				
OD	WT. (lbs/ft)	PART NUMBER	OD	MIN.	MAX.		SETTING TOOL	ADAPTER KIT**	SETTING SLEEVE	ADJUSTER SUB	SHSS	LOCK SPRING	TENSION MANDREL	SETTING TOOL	ADAPTER KIT***	SETTING SLEEVE	ADAPTER ROD	LOCK NUT
2-3/8	3.3 - 5.9	000-1710-002	1.710	1.867	2.107	7,000#	#5		000-1710-200	Not Required	Not Required	Not Required	Not Required	1-11/16		000-1710-101	Not Required	Not Required
2-7/8	6.4 - 6.5	000-2100-002	2.100	2.280	2.563				000-2100-200					1-1/2		000-2100-101		
3-1/2	5.7 - 10.2	000-2750-002	2.750	2.867	3.258				000-2750-200					2-1/8		000-2750-101		
4	5.6 - 14	000-3120-002	3.120	3.340	3.732	20,000#	#10	000-3120-900	000-3120-200				000-3120-206			000-3120-100		
4-1/2	9.5 - 16.6	000-3500-002	3.500	3.826	4.090	30,000#		000-3500-900	000-3500-200			000-3500-203	000-3500-206	3-1/2 3-5/8	000-3500-930	000-3500-100	000-3500-106	
		000-3500-004																
	9.5 - 13.5	000-3710-002	3.710	3.920	4.560													
5	11.5 - 21	000-3710-004																
5-1/2	13 - 25	000-4240-002	4.240	4.580	5.047			000-4240-900	000-4240-200	000-4240-209	5/16-18 X 3/8	000-4240-203	000-4240-206		000-4240-930	000-4240-100		
5-3/4	22.5 - 25.2	000-4240-004																
6	14 - 26	000-4750-002	4.750	5.140	5.595													
6-5/8	34																	
6	10.5 - 12	000-5340-002	5.340	5.595	6.366	55,000#	#20	000-5610-900	000-5610-200						000-5610-930	000-5610-100		000-3500-107
6-5/8	17 - 34																	
7	23 - 40																	
6-5/8	17 - 22	000-5610-002	5.610	5.989	6.655													
7	17 - 35	000-5610-004																
7-5/8	20 - 39	000-6090-002	6.090	6.625	7.263			000-6090-900	000-6090-200						000-6090-930	000-6090-100		
8-5/8	24 - 49	000-6960-002	6.960	7.511	8.248			000-6960-900	000-6960-200						000-6960-930	000-6960-100		
9-5/8	29.3 - 53.5	000-7710-002	7.710	8.435	9.063			000-7710-900	000-7710-200						000-7710-930	000-7710-100		
10-3/4	54 - 81	000-8710-002	8.710	9.250	9.784			000-8710-900	000-8710-200						000-8710-930	000-8710-100	000-5610-106	
	32.7 - 51	000-9500-002	9.500	9.850	11.150			000-9500-900	000-9500-200				000-5610-206		000-9500-930	000-9500-100		
11-3/4	38 - 60	000-9500-002	9.500	9.850	11.150													
13-3/8	77 - 102	000-1156-002	11.560	11.633	12.464			000-1156-900	000-1156-200						000-1156-930	000-1156-100		
	48 - 72	000-1200-002	12.000	12.347	12.715			000-1200-900	000-1200-200						000-1200-930	000-1200-100		
16	65 - 109	000-1425-002	14.250	17.655	18.730			000-1425-900	000-1425-200						000-1425-930	000-1425-100		
20	133 - 169	000-2000-002	18.375	18.730	19.124			000-2000-900	000-2000-200						000-2000-930	000-2000-100		

** Use Legacy® Oil Tools power charges or slow burn power charges for wireline set bridge plugs. Contact us for specific application requirements.*
*** Adapter Kit incluides (Setting Sleeve, Adjuster Sub, Socket Head Set Screw, Lock Spring and Tension Mandrel)*
**** Adapter kit includes (Setting Sleeve, Adapter Rod and Lock Nut)*

WIRELINE SET CEMENT RETAINERS

CASING		PLUG		SETTING RANGE		SETTING FORCE (lbs)	SETTING TOOL	BAKER STYLE SETTING ADAPTERS						
OD	WT. (lbs/ft)	PART NUMBER	OD	MIN.	MAX.			ADAPTER KIT**	SETTING SLEEVE	STUB SLEEVE BUSHING	ADJUSTER SUB	SHSS	LOCK SPRING	TENSION MANDREL
4-1/2	9.5 - 16.6	005-3593-002	3.593	3.826	4.090	30,000#	#10	005-3593-900	005-3593-200	Not Required	Not Required	Not Required	005-3593-203	005-3593-205
5	11.5 - 21	005-3937-002	3.937	4.154	4.560			005-3937-900	005-3937-200		000-4240-209	5/16 - 18 X 3/8	000-4240-203	005-3937-205
5-1/2	13 - 25	005-4312-002	4.312	4.580	5.044			005-4312-900	005-4312-200					
6	10.5 - 12	005-5357-002	5.375	5.595	6.135			005-5687-900	005-5687-200					
6-5/8	17 - 34													
7	23 - 40													
	17 - 35	005-5687-002	5.687	6.004	6.538	55,000#	#20							
7-5/8	20 - 39	005-6312-002	6.312	6.625	7.263			005-6312-900	005-6312-200					
8-5/8	24 - 49	005-7125-002	7.125	7.511	8.248			005-7125-900	005-7125-200					005-5687-205
9-5/8	29.3 - 53.5	005-8125-002	8.125	8.435	9.063			005-8125-900	005-8125-200	005-8125-210				
10-3/4	54 - 81	005-9000-002	9.000	9.250	9.660			005-9000-900	005-9000-200					
	32.7 - 51	005-9437-002	9.437	9.660	10.192			005-9437-900	005-9437-200					
13-3/8	77 - 102	005-1156-002	11.560	11.633	12.464			005-1156-900	005-1156-200					
	48 - 72	005-1200-002	12.000	12.175	12.715			005-1200-900	005-1200-200					
16	65 - 109	005-1425-002	14.250	17.655	18.730			005-1425-900	005-1425-200					
20	133 - 169	005-2000-002	18.375	18.730	19.124			005-2000-900	005-2000-200					

** Use Legacy® Oil Tools power charges or slow burn power charges for wireline set cement retainers. Contact us for specific application requirements.*
*** Adapter kit includes (Setting sleeve, Stub Sleeve Bushing, Adjuster Sub, Socket Head Set Screw, Lock Spring, and Tension Mandrel)*

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LOCATOR TYPE

This unit provides positive control of the sleeve valve and seals the tubing to the retainer during pressuring operations when the need for anchoring is not warranted.

The tubing can be tested by stinging into the retainer, then raising the tubing approximately 4” at the retainer, which allows the valve to be closed and the stinger to remain sealed off in the retainer bore. Pressure can then be applied to the tubing string for testing.

To remove the stinger from the retainer, simply raise the tubing to free the stinger from the retainer bore.

A centralizing unit should be run above to assure the seal nipple stings in accurately.

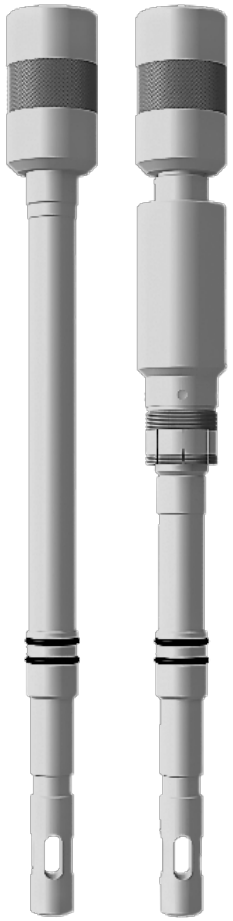
LATCHING TYPE

This unit provides positive control of the sleeve valve and seals the tubing to the retainer during pressuring operations while effectively anchoring the tubing in the retainer.

The tubing can be tested by stinging into the retainer, then raising the tubing approximately 4” at the retainer, which allows the valve to be closed and the stinger to remain sealed off in the retainer bore. Pressure can then be applied to the tubing string for testing.

Release is accomplished by taking an upward pull of approximately 8,000 lbs. which will collapse the snap latch and free the seal unit from the retainer. After repeated usage, the snap-in and snapout values will decrease to 2,500 lbs. snap-in and 5,000 lbs. snap-out force.

A centralizing unit should be run above to assure the seal nipple stings in accurately.



Locator Type | Latching Type

SPECIFICATIONS

RETAINER SIZE	MODEL B LOCATOR TYPE	MODEL B LATCHING TYPE
3.593 - 4.312	017-3593-070	017-3593-080
5.375 - 12.00	017-5687-070	017-5687-080

Cast Iron Zonal Isolation - Seal Nipples
Locator Seal Nipple for Ball Check Cement Retainers

The Locator Seal Nipple is designed to seal the tubing string to the retainer, allowing the casing to be isolated from high pressure while testing or during pressure operations.

The tubing can be tested by circulating a test ball down the tubing. The ball will seat in the top of the seal nipple and provide positive shut-off to the tubing string. Pressure can then be applied to the tubing string.

After testing is completed, the test ball can be reverse circulated out of the tubing string. After the ball is retrieved, the job can be completed by lowering the tubing to sting into the retainer or by raising the tubing to sting out of the retainer.

SPECIFICATIONS

BALL CHECK RETAINER SIZE	LOCATOR SEAL NIPPLE
1.71	016-1710-070
2.10 - 3.12	016-2100-070

Cast Iron Zonal Isolation - Hydro-Mechanical
Model H-M Hydro-Mechanical Bridge Plug

The H-M Bridge Plug uses hydraulic power to set the top slips and then mechanical pull to complete the set. **Model P** is for high-pressure and high-temperature applications, while **Model E** sustains moderate temperature and pressure.

A mechanical setting tool is not required because the setting mechanism is built-in. A ball is placed in the tubing string, plugging off the built-in equalizing ports. Pressure is applied to set the top slip. Then mechanical pull is applied to finish the set. Releasing the tubing string from the plug is done by simply turning to the right.

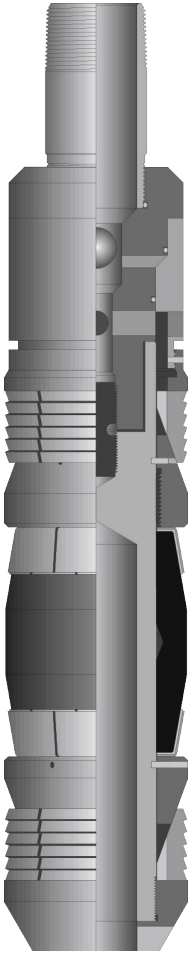
Full tubing I.D. is available after releasing from the plug, allowing other equipment to extend through the end of the tubing string.

FEATURES, ADVANTAGES, AND BENEFITS

- Drillable
- Cast iron construction
- One piece slip
- Sets in any grade casing including P-110
- Metal back-up to prevent rubber extrusion
- For temporary or permanent service
- Ratcheting lock ring holds setting force
- Excellent for deviated wells

SPECIFICATIONS

CASING		PLUG		SETTING RANGE		SURFACE PRESSURE (PSI)	PULL FORCE	
OD	WT. (LBS/FT)	PART NUMBER	OD	MIN.	MAX.		MIN.	MAX.
4-1/2	9.5 - 16.6	000-3500-055	3.50	3.826	4.090	1,500 psi	25,000	35,000
5	11.5 - 18	000-3710-055	3.71	3.920	4.560	1,500 psi	25,000	35,000
5-1/2	13 - 25	000-4240-055	4.24	4.580	5.047	1,500 psi	25,000	35,000
5-3/4	22.5 - 25.2	000-4240-055	4.24	4.580	5.047	1,500 psi	25,000	35,000
6	14 - 26	000-4750-055	4.75	5.140	5.595	1,500 psi	35,000	45,000
6-5/8	34	000-4750-055	4.75	5.140	5.595	1,500 psi	35,000	45,000
6	10.5 - 12	000-5340-055	5.34	5.595	6.366	1,500 psi	35,000	45,000
6-5/8	17 - 34	000-5340-055	5.34	5.595	6.366	1,500 psi	35,000	45,000
7	23 - 40	000-5340-055	5.34	5.595	6.366	1,500 psi	35,000	45,000
6-5/8	17 - 22	000-5610-055	5.61	5.989	6.655	1,500 psi	35,000	45,000
7	17 - 35	000-5610-055	5.61	5.989	6.655	1,500 psi	35,000	45,000
7-5/8	20 - 39	000-6090-055	6.09	6.625	7.263	1,500 psi	35,000	45,000
8-5/8	24 - 49	000-6960-055	6.96	7.511	8.248	1,500 psi	35,000	45,000
9-5/8	29.3 - 53.5	000-7710-055	7.71	8.435	9.063	1,500 psi	35,000	45,000
10-3/4	54 - 81	000-8710-055	8.71	9.250	9.784	1,500 psi	35,000	45,000
10-3/4	32.7 - 51	000-9500-055	9.50	9.850	11.150	1,500 psi	35,000	45,000
11-3/4	38 - 60	000-9500-055	9.50	9.850	11.150	1,500 psi	35,000	45,000
13-3/8	77 - 102	000-1156-055	11.56	11.633	12.464	1,500 psi	35,000	45,000
13-3/8	48 - 72	000-1200-055	12.00	12.347	12.715	1,500 psi	35,000	45,000



Model P (for HPHT Applications)
Available for 4-1/2" to 13-3/8" Casing

Model E (for Moderate Applications)
Available for 4-1/2" to 7" Casing

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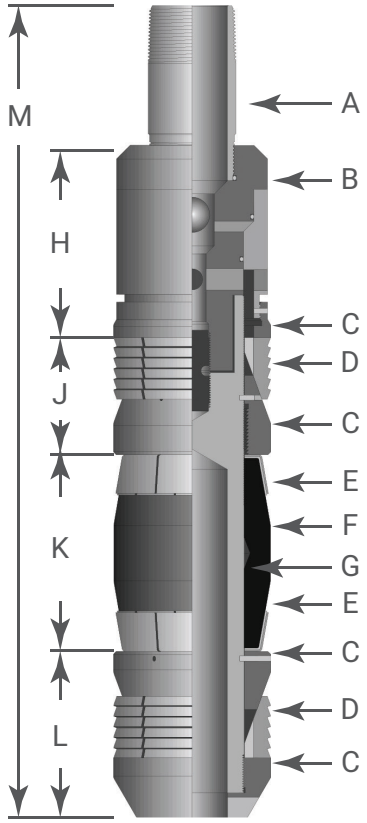
DIMENSIONAL DATA

PLUG SIZE O.D.	A	B	C	D	E	F	G	H	J	K	L	M
3.50 P	2.600	3.500	3.500	3.421	3.437	3.437	2.125	8.531	3.455	5.470	4.733	27.187
3.71 P	2.600	3.500	3.710	3.625	3.648	3.648	2.125	8.531	3.455	5.470	4.733	27.187
4.24 P	2.600	3.500	4.240	4.187	4.187	4.187	2.750	8.531	3.623	5.390	5.028	27.375
4.75 P	2.600	3.500	4.750	4.687	4.687	4.687	2.750	8.531	3.623	5.390	5.028	27.375
5.34 P	3.100	5.340	5.340	5.281	5.260	5.260	3.687	9.125	4.151	7.250	5.932	31.125
5.61 P	3.100	5.340	5.610	5.562	5.546	5.546	3.687	9.125	4.151	7.250	5.932	31.125
6.09 P	3.100	5.340	6.090	6.015	5.968	5.968	4.125	11.031	3.860	8.859	7.132	35.437
6.96 P	3.100	5.340	6.960	6.875	6.843	6.843	4.625	11.031	4.900	9.796	7.400	37.687
7.71 P	3.100	5.340	7.710	7.640	7.593	7.593	5.125	11.031	5.125	10.046	7.625	38.375
8.71 P	3.100	5.340	8.710	8.640	8.593	8.593	5.687	11.031	4.867	10.562	8.235	39.250
9.50 P	3.100	5.340	9.500	9.375	9.375	9.375	6.750	10.781	5.644	10.562	9.011	40.781
11.56 P	3.100	5.340	11.56	11.437	11.437	11.437	9.000	11.531	5.750	10.609	8.250	41.156
12.00 P	3.100	5.340	12.00	11.875	11.875	11.875	9.000	11.531	5.750	10.609	8.250	41.156

The figures contained herein are subject to change without notice.
Some sizes differ slightly from the illustrations shown.



RECOMMENDED PROCEDURE BEFORE RUNNING H-M BRIDGE PLUG

1. Run a casing scraper (if necessary) to clean inner casing wall and free any debris or obstructions.
2. Circulate well to clean well of debris and junk.
3. Check casing I.D. 2 ft. to 3 ft. below setting depth to ensure that no restrictions exist.

MAKE-UP PROCEDURE

1. Make up tubing on tubing adapter by placing a back-up on tubing adapter and rotating tubing to the right until tight.
2. DO NOT REMOVE TUBING ADAPTER FROM PLUG TO MAKE-UP!!

SETTING H-M BRIDGE PLUG

1. Run tubing to desired setting point. Never set in collars or where milling has occurred. Set in static conditions (no fluid or gas movement).
2. Drop ball down tubing string - the ball should be 1-1/4" diameter. Allow approximately five (5) minutes per 1000 feet for the ball to travel in water. More time is required in mud or viscous fluids.
3. Apply pump pressure to tubing string until 2,000 psi is reached. This pressure will stroke the cylinder down into the slip. The slip will break into segments and make contact with the casing. **NOTE**: *If you lose pressure before reaching 2,000 psi, go on to the next step. In heavier weights of casing, slip and hydro sleeve travel is limited, which prevents pressure loss. Simply stop at 2,000 psi and proceed to the next step.*
4. Bleed pressure and pull recommended tension above the pipe weight at the tool, to complete setting the plug.

PLUG	SETTING FORCES	
SIZE (O.D.)	MINIMUM TENSION	MAXIMUM TENSION
3.50 - 4.75	20,000 lbs.	35,000 lbs.
5.34 - 6.09	30,000 lbs.	45,000 lbs.
6.96 - 7.71	30,000 lbs.	45,000 lbs.
8.71 - 9.50	30,000 lbs.	45,000 lbs.
11.56 - 12.00	30,000 lbs.	45,000 lbs.

5. Hold tension for three (3) to five (5) minutes. It is recommended to calculate tubing stretch versus weight indicator for true pull.
6. The tubing string may be released from the H-M Plug by pulling 500 lbs. tension at the tool and rotating the workstring nine (9) turns to the right at the tool.
7. For low fluid level wells, refer to additional instructions and charts in the following section.

To Calculate Stretch to Set:
S= (F x L x 12) / (E x A) = Elongation due to tension (inches)
F = Tension pulled over normal weight (pounds)
E = 30,000,000 = Modulas of elasticity for steel
L = Length of running-in string (feet)
A = Cross-sectional area of running-in string (square inches)

SETTING H-M BRIDGE PLUG IN LOW FLUID LEVEL WELLS

In low fluid level wells, any fluids placed in the tubing after the setting ball has reached its seat will tend to shear the cylinder downward on the H-M Bridge Plug.

- Chart #1 shows the pressure created in psi. per barrel of fluid added.
- Chart #2 shows the feet of fill-up per barrel of fluid added.

Since 2000 psi. pressure in favor of the tubing at the tool is required to initiate the setting sequence, we suggest the following method for calculating the required applied pump pressure.

1. Determine fluid weight in pounds per gallon (#/gal) or psi per foot (psi/ft).
2. Estimate fluid level from surface of well. NOTE: The tubing string will fill during running in through the fluid fill ports.
3. From Chart #1, select the appropriate column for the size of tubing string and line for appropriate fluid weight.
4. From Chart #2, select the appropriate column for the size of tubing string and determine the lineal feet per barrel of fluid.

CHART #2

OD	WT. (lbs/ft)	Barrels p/ Lineal Ft.	Lineal Ft. p/ Barrel	A
2 3/8	4.7 EU	.003870	258.4	1.304
2 3/8	4.6 NU	.003870	258.4	1.304
2 7/8	6.5 EU	.005794	172.6	1.812
2 7/8	6.4 NU	.005794	172.6	1.812
2 7/8	10.4 IU DP	.004404	222.5	2.858
3 1/2	13.3 IU DP	.007421	134.7	2.915

5. Multiply the depth of fluid level from surface by the lineal feet per barrel from Chart #2 to determine the required amount of barrels of fluid to fill the tubing string.
6. Multiply the barrels required to fill the tubing string by the psi barrel figure from Chart #1. The result is the total hydrostatic head exerted by the fluid in the tubing string when completely filled. If this figure is less than the required 2000 psi., sufficient pump pressure must be added to achieve the 2000 psi required pressure. In those cases where the calculated pressure for the fluid to fill the tubing string exceeds the required 2000 psi, you need only to add or fill with the necessary barrels of fluid to achieve the required 2000 psi. Calculate this by dividing 2000 psi by the psi per barrel figure from Chart #1. Over pressuring cannot occur because the tool will be activated at 2000 psi. and the downward travel of the cylinder will vent the excess fluid into the annulus above the plug before damage occurs. Once the required pressure is created at the plug, sufficient tension must be applied as described in step #4 under setting H-M plug. Complete the setting sequence as described in step #5.

CHART #1

Mud Wt. API GR #/GAL	PSI/FT	2-3/8 EU Tubing 4.7 #/FT	2-3/8 EU Tubing 6.5 #/FT	2-3/8 EU Tubing 10.4 #/FT	2-3/8 EU Tubing 13.3 #/FT
8.34	.433	111.09	74.8	97.6	58.9
9.0	.468	120.8	80.7	105.4	63.6
9.2	.478	123.5	28.5	107.8	65.0
9.4	.488	126.1	84.3	110.1	66.4
9.6	.499	128.8	86.1	112.4	67.8
9.8	.509	131.5	87.9	114.8	69.2
10.0	.519	134.2	89.7	117.1	70.7
10.2	.530	136.9	91.4	119.5	79.1
10.4	.540	139.6	93.2	121.8	73.5
10.6	.551	142.2	95.0	124.2	74.9
10.8	.561	144.9	96.8	126.5	76.3
11.0	.571	147.6	98.6	128.8	77.7
11.2	.582	150.3	100.4	131.2	79.1
11.4	.592	153.0	102.2	133.5	80.5
11.6	.603	155.7	104.0	135.9	82.0
11.8	.613	158.3	105.8	138.2	83.4
12.0	.623	161.0	107.6	140.6	84.8
12.2	.634	163.7	109.4	142.9	86.2
12.4	.644	166.4	111.2	145.2	87.6
12.6	.655	169.1	113.0	147.6	89.0
12.8	.665	171.8	114.8	149.9	90.4
13.0	.675	174.5	116.5	152.3	91.8
13.2	.686	177.1	118.3	154.6	93.3
13.4	.696	179.8	120.1	157.0	94.7
13.6	.706	182.5	121.9	159.3	96.1
13.8	.717	185.2	123.7	161.6	97.5
14.0	.727	187.0	125.5	164.0	98.9
14.5	.753	194.6	130.0	169.8	102.4
15.0	.779	201.3	134.5	175.7	106.0
15.5	.805	208.0	139.0	181.6	109.5
16.0	.831	214.7	143.4	187.4	113.0
16.5	.857	221.4	147.9	193.3	116.6
17.0	.883	220.1	152.4	199.1	120.1
17.5	.909	234.8	156.9	205.0	123.6
18.0	.935	241.5	161.4	210.8	127.2
18.5	.961	248.3	165.8	216.7	130.7
19.0	.987	255.0	170.3	222.6	134.2
19.5	1.01	261.7	174.8	228.4	137.8
20.0	1.04	268.4	179.3	234.3	141.3

Cast Iron Zonal Isolation - Mechanical Set
Model BP-MS Bridge Plug

Model BP-MS Cast Iron Drillable Bridge Plug's modular, field-proven design makes it a versatile tool in a variety of applications. The BP-MS may be set mechanically or on a wireline setting tool by changing the top slips. The BP-MS also converts to an CR-MS Cement Retainer by replacing the solid plug with a sleeve valve.

BP-MS MECHANICAL SET
Also available in Wireline Set

APPLICATIONS

- Well Abandonment
- Temporary or Permanent Zone Isolation

FEATURES, ADVANTAGES, AND BENEFITS

- Cast iron drillable design
- Converts to a Model CR Cement Retainer
- Converts between mechanical set or wireline set by changing top slips
- Fast drill out saves rig time
- Temperature rating to 325° F
- Differential pressure rating to 10,000 psi thru 7 5⁄8"
- Convertability reduces inventory requirements

SPECIFICATIONS

CASING		PLUG		SETTING RANGE		SETTING TOOL
OD	WT. (LBS/FT)	PART NUMBER	OD	MIN.	MAX.	MECHANICAL
4-1/2	9.5 - 16.6	005-3593-001	3.593	3.826	4.090	Model B
5	11.5 - 18	005-3937-001	3.937	4.154	4.560	Model B
5-1/2	13 - 23	005-4312-001	4.312	4.580	5.044	Model B
6	10.5 - 12	005-5375-001	5.375	5.959	6.135	Model B
6-5/8	17 - 34	005-5375-001	5.375	5.959	6.135	Model B
7	32 - 38	005-5375-001	5.375	5.959	6.135	Model B
7	17 - 35	005-5687-001	5.687	6.004	6.538	Model B
7-5/8	20 - 39	005-6312-001	6.312	6.625	7.263	Model B
8-5/8	24 - 49	005-7125-001	7.125	7.511	8.248	Model B
9-5/8	29.3 - 53.5	005-8125-001	8.125	8.435	9.063	Model B
10-3/4	54 - 81	005-9000-001	9.000	9.250	9.660	Model B
10-3/4	32.7 - 51	005-9437-001	9.437	9.660	10.192	Model B
13-3/8	77 - 102	005-1156-001	11.562	11.633	12.464	Model B
13-3/8	48 - 72	005-1200-001	12.000	12.175	12.715	Model B

Cast Iron Zonal Isolation - Mechanical Set
Model CR-MS Sleeve Valve Cement Retainer

Model CR-MS Cast Iron Drillable Cement Retainer's modular, field-proven design makes it a versatile tool in a variety of applications. The Sleeve Valve Cement Retainer (SVCR) may be set mechanically or set on a wireline setting tool by changing the top slips. The SVCR also converts to an BP Bridge Plug by replacing the sleeve valve with a solid plug.

AVAILABLE FOR 4-1/2" TO 13-3/8" CASING
Also Available in Wireline Set

APPLICATIONS

- Cementing
- Stimulation
- Well Abandonment
- Temporary or Permanent Zone Isolation

FEATURES, ADVANTAGES, AND BENEFITS

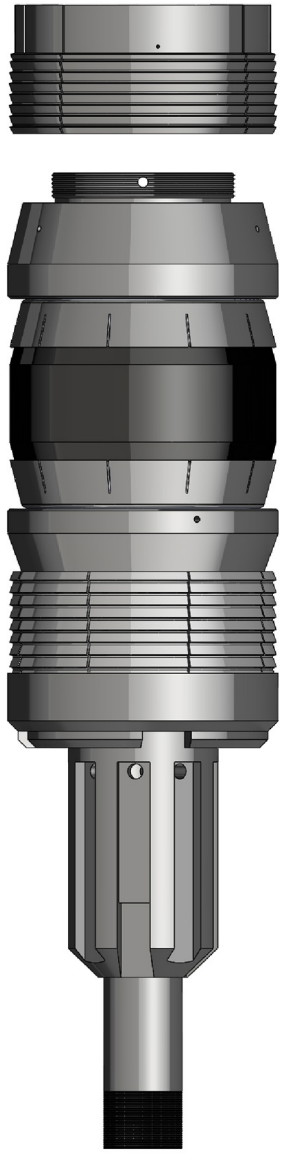
- Cast iron drillable design
- Converts to a Model BP Bridge Plug
- Converts between mechanical set or wireline set by changing top slips
- Temperature rating to 325° F
- Differential pressure rating to 10,000 psi thru 7 5⁄8"
- Simple, surface-controlled valve automatically closes when the stinger is removed
- Allows pressure testing before squeeze
- Valve protects sensitive zones in low-fluid wells
- Fast drill out saves rig time
- Convertability reduces inventory requirements

SPECIFICATIONS

CASING		PLUG		SETTING RANGE		SETTING TOOL
OD	WT. (LBS/FT)	PART NUMBER	OD	MIN.	MAX.	MECHANICAL
4-1/2	9.5 - 16.6	005-3593-000	3.593	3.826	4.090	Model B
5	11.5 - 18	005-3937-000	3.937	4.154	4.560	Model B
5-1/2	13 - 23	005-4312-000	4.312	4.580	5.044	Model B
6	10.5 - 12	005-5375-000	5.375	5.959	6.135	Model B
6-5/8	17 - 34	005-5375-000	5.375	5.959	6.135	Model B
7	32 - 38	005-5375-000	5.375	5.959	6.135	Model B
7	17 - 35	005-5687-000	5.687	6.004	6.538	Model B
7-5/8	20 - 39	005-6312-000	6.312	6.625	7.263	Model B
8-5/8	24 - 49	005-7125-000	7.125	7.511	8.248	Model B
9-5/8	29.3 - 53.5	005-8125-000	8.125	8.435	9.063	Model B
10-3/4	54 - 81	005-9000-000	9.000	9.250	9.660	Model B
10-3/4	32.7 - 51	005-9437-000	9.437	9.660	10.192	Model B
13-3/8	77 - 102	005-1156-000	11.562	11.633	12.464	Model B
13-3/8	48 - 72	005-1200-000	12.000	12.175	12.715	Model B

Cast Iron Zonal Isolation - Mechanical Set
Model CRSS-MS Sleeve Valve Cement Retainer Squeeze and Shoot

Model CRSS-MS Cast Iron Drillable Cement Retainer's modular, field proven design makes it a versatile tool in a variety of applications. The Sleeve Valve Cement Retainer Squeeze & Shoot (SVCRSS) may be set on a wireline setting tool or mechanically by changing the top slips.



AVAILABLE FOR 7" TO 13-3/8" CASING
Also Available in Wireline Set

APPLICATIONS

- Cementing
- Stimulation
- Well Abandonment
- Temporary or Permanent Zone Isolation

FEATURES, ADVANTAGES, AND BENEFITS

- Cast iron drillable design
- Converts to a Model BP Bridge Plug
- Converts between mechanical set or wireline set by changing top slips
- Temperature rating to 325° F
- Differential pressure rating to 10,000 psi thru 7 5⁄8"
- Simple, surface-controlled valve automatically closes when the stinger is removed
- Allows pressure testing before squeeze
- Valve protects sensitive zones in low-fluid wells
- Convertability reduces inventory requirements
- Slips available for all grades of casing

SPECIFICATIONS

CASING		PLUG		SETTING RANGE		SETTING TOOL
OD	WT. (LBS/FT)	PART NUMBER	OD	MIN.	MAX.	MECHANICAL
7	32 - 38	005-5375-000SS	5.375	5.959	6.135	Model B
7	17 - 35	005-5687-000SS	5.687	6.004	6.538	Model B
7-5/8	20 - 39	005-6312-000SS	6.312	6.625	7.263	Model B
9-5/8	29.3 - 53.5	005-8125-000SS	8.125	8.435	9.063	Model B
10-3/4	54 - 81	005-9000-000SS	9.000	9.250	9.660	Model B
10-3/4	32.7 - 51	005-9437-000SS	9.437	9.660	10.192	Model B
13-3/8	77 - 102	005-1156-000SS	11.562	11.633	12.464	Model B
13-3/8	48 - 72	005-1200-000SS	12.000	12.175	12.715	Model B

Wireline Pressure Setting Tools
BT-10, 2.75” (69.9 mm), 024-2750-000

The reliable #10 setting tool has long been the go-to style of tool for setting zonal isolation equipment. GEODynamics’ tools hold up to that same functional expectation. Many of the original design ideas remain in our #10 setting tools. Our technicians measure the critical dimensions of each tool before it is approved for shipment. Customers can send GEODynamics setting tools back to our facilities for inspection and re-certification. These dimensional inspections allow our customers to confidently evaluate the remaining life of their setting equipment.

Mechanical Specifications		
Maximum Outside Diameter	2.750 in	69.9 mm
Casing Size Outside Diameter	≤ 5.0 in	≤ 12.7 cm
Makeup Length *(no firing head)*	63.80 in	162.05 cm
Makeup Length *(w/firing head)*	72.21 in	183.41 cm
Total Weight	65.22 lbs	29.58 kg
Maximum Tool Stroke	5.875 in	17.78 cm
Maximum Setting Force	35,000 lbs	155 kN

Pressure Specifications		
Maximum Hydrostatic Pressure at Setting Depth	15,000 psi	103 MPa

Temperature Specifications		
Maximum Operating Temperature	400°F	204°C
Seal Temperature Ratings†		
90 Duro Buna Nitrile	275°F	135°C
90 Duro HNBR	350°F	177°C
90 Duro Viton	375°F	191°C

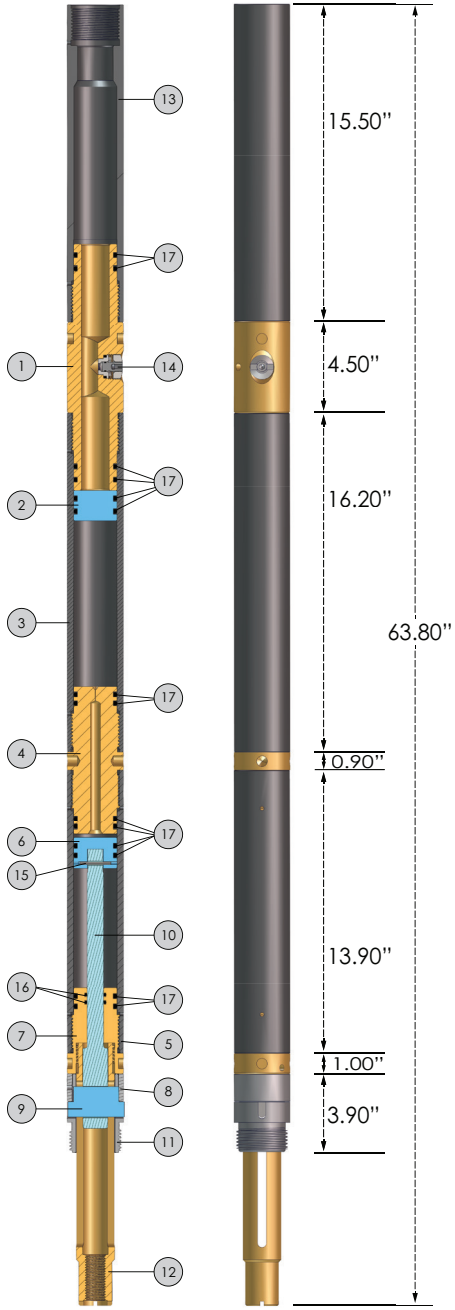
†*Choose o-ring material based on fluid compatibility and wellbore temperature requirements.*

Thread Connections	
Pressure Chamber (Top)	2.375” -6P ACME 2G Internal
Cross Link Sleeve (Bottom)	2.5” -6P ACME 2G External
Setting Mandrel (Bottom)	1” -8P UN-2B Internal

COMPONENTS

Item	Part Number	Description	QTY
1	024-2750-036	Manual Bleeder Valve Conn.	1
2	024-2750-037	Floating Piston	1
3	024-2750-038	Upper Cylinder	1
4	024-2750-039	Cylinder Connector	1
5	024-2750-040	Lower Cylinder	1
6	024-2750-041	Bottom Piston	1
7	024-2750-043	Cylinder Head	1
8	024-2750-044	Link Retaining Ring	1
9	024-2750-045	Cross Link	1
10	024-2750-046	Piston Rod	1
11	024-2750-047	Cross Link Sleeve	1
12	024-2750-048	Setting Mandrel	1
13	024-2750-035	Pressure Chamber	1
14	ST-WS00-142	Piston Bleeder Assembly	1
15	HD-SP187-08	HD Spiral Pin, 3/16” x 1.5 L	1
16	OR-N569-211	O-Ring, #211 Nitrile	2
17	OR-N569-327	O-Ring, #327 Nitrile	14

Kits and hardware accessories detailed on next page



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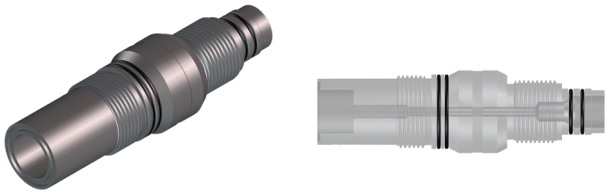
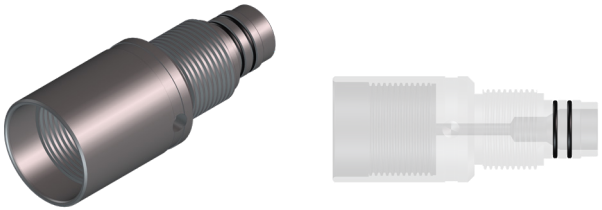
Patents: www.oilstatesintl.com/patents

FIRING HEADS

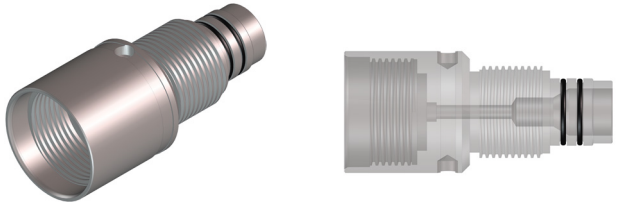


ST-2010-100, GO Quick Change Applications

GUN CARRIER to SETTING TOOL CROSSOVERS



GN-RX31-BK10-050, 3-1/8” Conventional Gun Thread Connection
For use with the S1® Ignitor



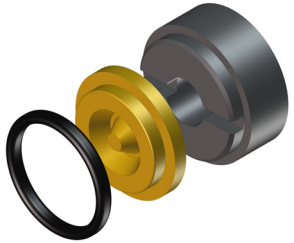
GN-RX31-BK10-GIC, 3-1/8” STRATX® and HELLFire® Gun Thread Connections,
For STRATX® and STRATX® HELLFire® gun systems, use the EPIC™ Module Ignitor.
For first generation HELLFire® gun systems, use the S1® Ignitor.

Additional crossover sizes available for Conventional and Unconventional Applications

O-RING REDRESS KIT, 024-2750-010

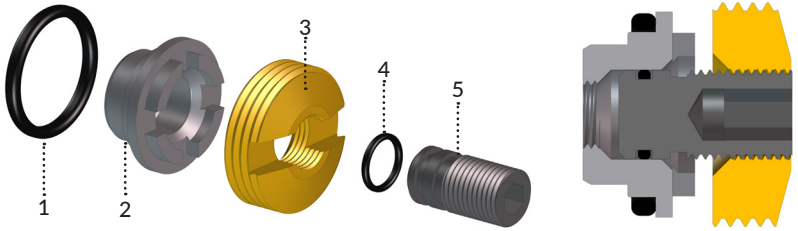
Part Number	Description	QTY
100-2012-090N	O-Ring, 2-012	1
100-2213-090N	O-Ring, 2-213	1
100-2211-090N	O-Ring, 2-211	2
100-2327-090N	O-Ring, 2-327	14
ST-0000-001	Rupture Disk	1

RUPTURE DISC BLEEDER VALVE COMPONENTS



Item	Part Number	Description	QTY
1	OR-N569-213	O-Ring, 2-213 90 Duro	1
2	ST-0000-001	Brass Rupture Disc	1
3	025-1020-001	Bleeder Nut	1

BLEEDER VALVE KIT, 024-2750-017



Item	Part Number	Description	QTY
1	100-2213-090N	O-Ring, 2-213 90 Duro	1
2	024-2750-049	Bleeder Valve Seat	1
3	024-2750-050	Retainer Nut	1
4	100-2012-090N	O-Ring, 2-012 90 Duro	1
5	024-2750-051	Bleeder Valve Stem	1

Wireline Pressure Setting Tools
BT-20, 3.81” (96.8 mm), 024-3812-000

The reliable #20 setting tool has long been the go-to style of tool for setting zonal isolation equipment. GEODynamics’ tools hold up to that same functional expectation. Many of the original design ideas remain in our #20 setting tools. Our technicians measure the critical dimensions of each tool before it is approved for shipment. Customers can send GEODynamics setting tools back to our facilities for inspection and re-certification. These dimensional inspections allow our customers to confidently evaluate the remaining life of their setting equipment.

Mechanical Specifications		
Maximum Outside Diameter	3.800 in	96.52 mm
Casing Size Outside Diameter	≥ 5.50 in	≥ 13.97 cm
Makeup Length *(no firing head)*	74.84 in	190.09 cm
Makeup Length *(w/firing head)*	83.59 in	212.32 cm
Total Weight	154.66 lbs	70.15 kg
Maximum Tool Stroke	8.625 in	21.91 cm
Maximum Setting Force	55,000 lbs	244 kN

Pressure Specifications		
Maximum Hydrostatic Pressure at Setting Depth	15,000 psi	103 MPa

Temperature Specifications		
Maximum Operating Temperature	400°F	204°C
Seal Temperature Ratings†		
90 Duro Buna Nitrile	275°F	135°C
90 Duro HNBR	350°F	177°C
90 Duro Viton	375°F	191°C

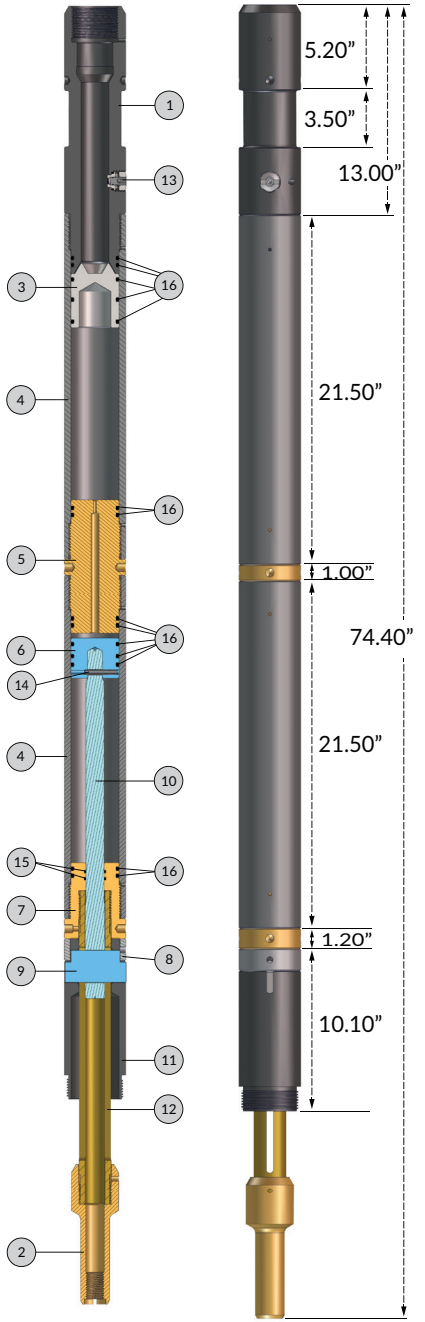
†*Choose o-ring material based on fluid compatibility and wellbore temperature requirements.*

Thread Connections	
Top Sub (#20 Box Up)	2.875” -6P ACME 2G Internal
Cross Link Sleeve (Bottom)	3.49” -6P ACME 2G External
Setting Mandrel (Bottom	2” -6P ACME 2G External
Adjuster Sub (Top)	2” -6P ACME 2G Internal
Adjuster Sub (Bottom)	1.125” -7P UN-2B Internal

COMPONENTS

Item	Part Number	Description	QTY
1	024-3812-035	Top Sub w/#20 Box Up	1
2	024-3812-036	Adjuster Sub	1
3	024-3812-037	Floating Piston	1
4	024-3812-038	Lower Cylinder	2
5	024-3812-039	Cylinder Connector	1
6	024-3812-041	Piston	1
7	024-3812-043	Cylinder Head	1
8	024-3812-044	Link Retaining Ring	1
9	024-3812-045	Cross Link	1
10	024-3812-046	Piston Rod	1
11	024-3812-047	Cross Link Sleeve	1
12	024-3812-048	Setting Mandrel	1
13	ST-WS00-142	Piston Bleeder Assembly	1
14	HD-RP-313-2	Roll Pin	1
15	OR-N569-216	O-Ring, #216 Nitrile	2
16	OR-N569-334	O-Ring, #334 Nitrile	14

Kits and hardware accessories detailed on next page



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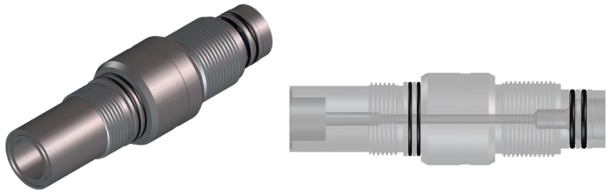
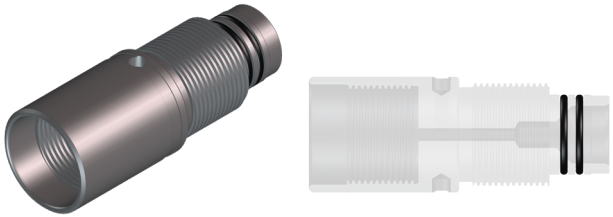
Patents: www.oilstatesintl.com/patents

FIRING HEADS

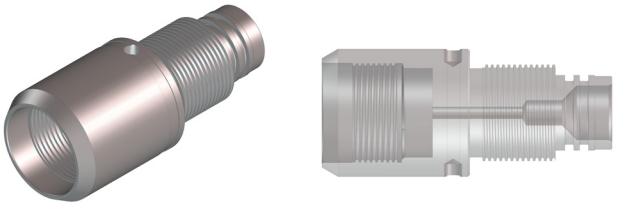


ST-2020-100, GO Quick Change Applications

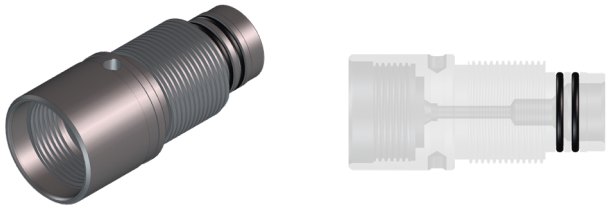
GUN CARRIER to SETTING TOOL CROSSOVERS



GN-RX31-BK20-050, 3-1/8” Conventional Gun Thread Connection
For use with the S1® Ignitor



GN-RX31-BK20-GG, 3-1/8” Baker Go Gun Thread Connection
For use with the S1® Ignitor



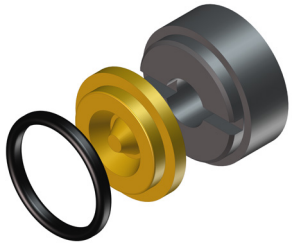
GN-RX31-BK20-GIC, 3-1/8” STRATX®, HELLFire® Gun Thread Connections
For STRATX® and STRATX® HELLFire® gun systems, use the EPIC™ Module Ignitor.
For first generation HELLFire® gun systems, use the S1® Ignitor.

Additional crossover sizes available for Conventional and Unconventional Applications

O-RING REDRESS KIT, 024-3812-010

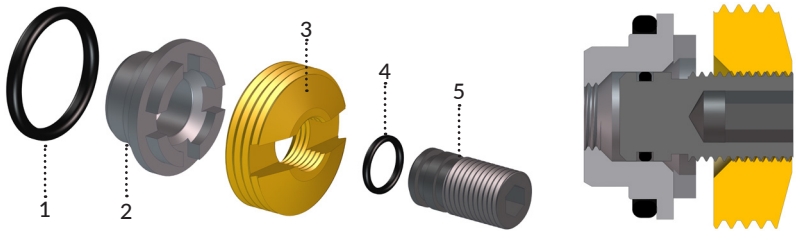
Part Number	Description	QTY
100-2012-090N	O-Ring, 2-012	1
100-2213-090N	O-Ring, 2-213	1
100-2216-090N	O-Ring, 2-216	2
100-2334-090N	O-Ring, 2-334	14
ST-0000-001	Rupture Disk	1

RUPTURE DISC BLEEDER VALVE COMPONENTS



Item	Part Number	Description	QTY
1	OR-N569-213	O-Ring, 2-213 90 Duro	1
2	ST-0000-001	Brass Rupture Disc	1
3	025-1020-001	Bleeder Nut	1

BLEEDER VALVE KIT, 024-2750-017



Item	Part Number	Description	QTY
1	100-2213-090N	O-Ring, 2-213 90 Duro	1
2	024-2750-049	Bleeder Valve Seat	1
3	024-2750-050	Retainer Nut	1
4	100-2012-090N	O-Ring, 2-012 90 Duro	1
5	024-2750-051	Bleeder Valve Stem	1

SafeVent™ Auto Bleed (AB) Conversion Kit
BT-10 and BT-20 Wireline Setting Tools

GEODynamics' patented SafeVent™ auto bleed (AB) conversion kit permits safe, automatic gas pressure bleeding of Baker style size 10 and size 20 wireline pressure setting tools.

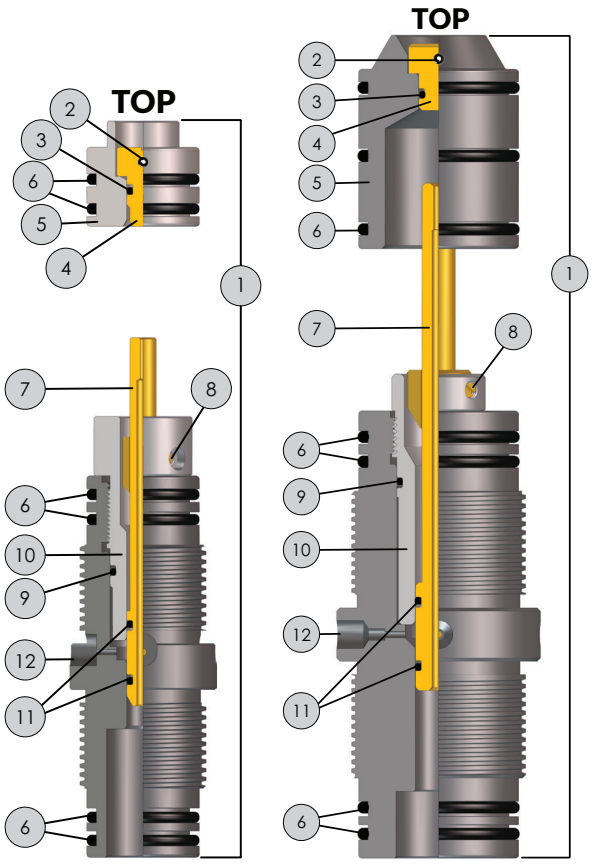
SafeVent increases personnel safety by eliminating the hazards of manually bleeding high-pressure gas from an actuated tool at surface. The automatic bleeding process does not change other setting tool functions. Automatic bleeding can occur while the tool is still downhole or when it is pulled up into the lubricator in high pressure wells.

SafeVent directly replaces the floating piston and connector sub of a standard Baker style wireline pressure setting tool with no machining modifications. Internal tool oil levels remain the same and assembly/disassembly procedures do not change. The SafeVent kit consists of two basic sub-assemblies:

- A new floating piston that contains a shear-pinned sealing plug, and
- A new connector sub that contains a shear-pinned, pressure-balanced, moveable brace rod piston

Once the bridge plug has set and sheared loose, the floating piston continues downward movement and pushes down on the brace rod piston which, in turn, shifts down. This opens four venting ports in the connector sub. Gas pressure from the burning power charge continues pushing on the floating piston and shear-pinned seal plug. The pin in the seal plug shears, forcing the seal plug upward and out of the floating piston. This allows gas pressure to flow around and through the brace rod piston and out through the connector sub vent ports into the well.

The existing Baker style manual bleed valve can remain as a secondary backup manual bleeding method. This manual bleed valve must be redressed after each use as usual. **DO NOT** back out the manual bleed valve retainer nut until you have punctured the bleed disc and are assured that all gas pressure has vented from the setting tool.



STW-2750-AB-KIT STW-3812-AB-KIT

SafeVent™ Kit Components

Item	Description	QTY	Size 10 Kit	Size 20 Kit
1	Kit Assy. - Items 2-12	1	STW-2750-AB-KIT	STW-3812-AB-KIT
2*	Shear Pin	1	HD-RP187-2000	
3*	O-Ring, 90 D	1	OR-N569-204	OR-N569-206
4	Seal Plug	1	STW-2750-036AB	STW-3812-038AB
5	Floating Piston	1	STW-2750-037AB	STW-3812-037AB
6*	O-Ring, 90 D	>	OR-N569-327 (QTY-6)	OR-N569-334 (QTY-7)
7	Brace Rod Piston	1	STW-2750-038AB	STW-3812-041AB
8*	Brass Shear Screw	1	052-5304-003 ("GO" Style)	
9*	O-Ring, 90 D	1	OR-N569-214	OR-N569-219
10	Shear Sleeve	1	STW-2750-035AB	STW-3812-040AB
11*	O-Ring, 90 D	2	OR-N569-204	OR-N569-208
12	Connector Sub	1	STW-2750-039AB	STW-3812-039AB
*	Redress Kit		STW-2750-RD-KIT	STW-3812-RD-KIT

CAUTION:
When installing the floating piston assembly (items 2-6) into the setting tool's upper cylinder, the upper shear-pinned end of the floating piston (item 5) **must be facing UPWARD (toward the power charge and pressure chamber)**.
If the floating piston orientation is reversed, the auto bleeding feature **will not** function properly and the high pressure gas **will not vent** from the tool. The gas must then be bled off using the secondary manual bleeding valve procedures.

Wireline Compact Setting Tool, High Pressure
3-5/8” (92.08 mm), STW-3625-201-HP

GEODynamics

GEODynamics’ Compact Setting Tool converts chemical potential energy stored in a power charge into mechanical energy used to set tools in the wellbore. These tools include, but are not limited to, frac plugs, bridge plugs, cement retainers, and packers. A power charge is burned, converting the solid powder into high pressure gas that expands, stroking and setting the tool intended to be left in the well. All internal pressures are retained and are released using a bleeder valve after the tool is pulled from the hole. The Compact Setting Tool is rated for high pressure due to proper o-ring landings for all o-ring surfaces, reducing potential damage during redress and assembly.

Mechanical Specifications		
Diameter	3.625 in (max.)	92.08 mm
Makeup Length	47.60 in (min.)	120.90 cm
Maximum Tool Stroke	9.94 in	25.25 cm
Maximum Shear Rating at 6” Stroke	55,000 lbs	245 kN
Maximum Tensile Force	158,200 lbs	704 kN
Tool Piston Area	5.26 in^2	33.90 cm^2

Pressure Specifications		
Collapse Pressure Rating	18,900 psi	130 MPa
Burst Pressure Rating	23,500 psi	162 MPa
Seal Pressure Rating		
without back-up rings	10,000 psi	69 MPa
with back-up rings	20,000 psi	138 MPa
Maximum BHP	15,000 psi	103 MPa

Temperature Specifications		
Power Charge Ratings (all at 1-hour time limit)		
Standard Power Charge, PC-3625-201	250°F	121°C
High Temp Power Charge, PC-3625-401	400°F	204°C
Seal Temperature Ratings†		
90 Duro Buna Nitrile	275°F	135°C
90 Duro HNBR	350°F	177°C
90 Duro Viton	375°F	191°C
For very high temps, use Chemraz		

†Choose o-ring material based on fluid compatibility and wellbore temperature requirements.

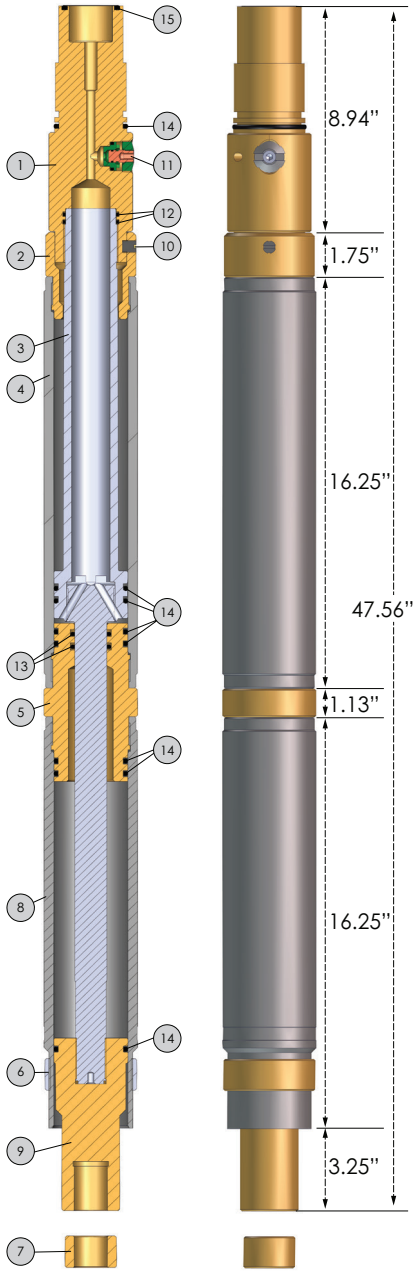
COMPONENTS

Item	Part Number	Description	QTY
1	STW-3625-120	Top Sub	1
2	STW-3625-121	Orifice Sub	1
3	STW-3625-122	Top Piston Assembly	1
4	STW-3625-125	Top Cylinder	1
5	STW-3625-126	Connector Sub	1
6	STW-3625-130	Lock Ring	1
7	STW-3625-131	Lock Nut	1
8	STW-3625-177	HP Bottom Cylinder	1
9	STW-3625-178	HP Bottom Piston	1
10	STW-3500-022	Shear Screw	1
11	ST-WS00-142	Pressure Bleeder Assembly	1
12	OR-N569-226	O-Ring, #226 Nitrile	2
13	OR-N569-322	O-Ring, #322 Nitrile	2
14	OR-N569-332	O-Ring, #332 Nitrile	8
15	OR-N569-328	O-Ring, #328 Nitrile	1

Kits and hardware accessories detailed on next page

THREAD CONNECTIONS

Top Sub	2-3/4” 6P ACME Pin Up
Lower Cylinder	3-1/4” 6P Stub ACME Pin Down
Bottom Piston	1-3/8” 8P Stub ACME Box Down



STW-3625-201-HP

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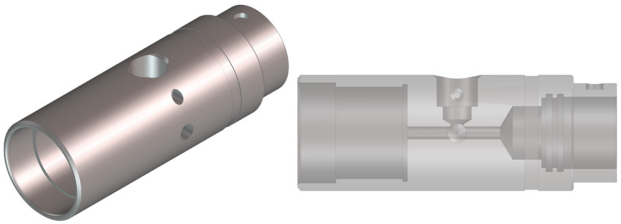
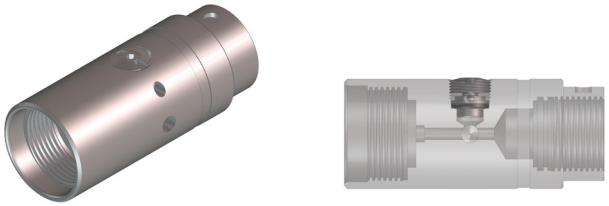
Patents: www.oilstatesintl.com/patents

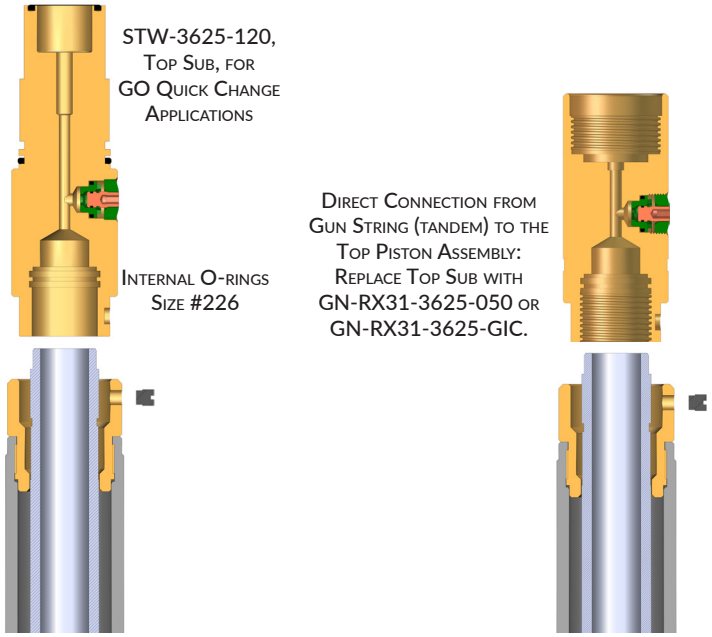
GUN CARRIER TO SETTING TOOL CROSSOVERS



GN-RX31-3625-050, 3-1/8” Conventional Gun Thread Connection
For use with the S1® Ignitor



GN-RX31-3625-GIC, 3-1/8” STRATX®, HELLFire® Gun Thread Connections
For STRATX® and STRATX® HELLFire® gun systems, use the EPIC™ Module Ignitor.
For first generation HELLFire® gun systems, use the S1® Ignitor.



STW-3625-120,
Top Sub, for
GO Quick Change
Applications

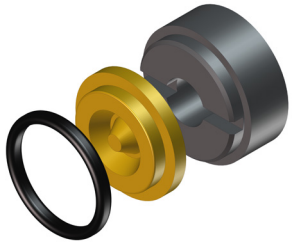
Internal O-rings
Size #226

Direct Connection from
Gun String (tandem) to the
Top Piston Assembly:
Replace Top Sub with
GN-RX31-3625-050 or
GN-RX31-3625-GIC.

REDRESS KIT, STW-3625-RDK-HP

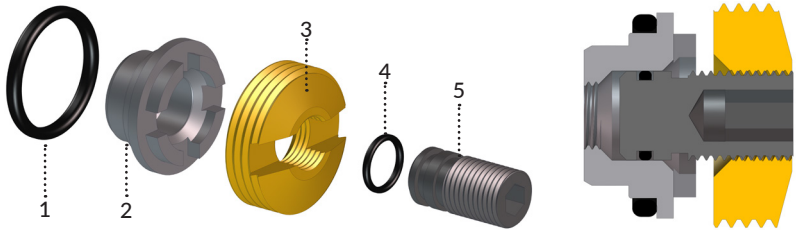
Part Number	Description	QTY
OR-N569-226	O-Ring, #226 Nitrile	2
OR-N569-322	O-Ring, #322 Nitrile	2
OR-N569-332	O-Ring, #332 Nitrile	8
OR-N569-328	O-Ring, #328 Nitrile	1
ST-0000-001	Rupture Disk	1
STW-3500-022	Shear Screw	1

RUPTURE DISC BLEEDER VALVE COMPONENTS



Item	Part Number	Description	QTY
1	OR-N569-213	O-Ring, 2-213 90 Duro	1
2	ST-0000-001	Brass Rupture Disc	1
3	025-1020-001	Bleeder Nut	1

BLEEDER VALVE KIT, 024-2750-017



Item	Part Number	Description	QTY
1	100-2213-090N	O-Ring, 2-213 90 Duro	1
2	024-2750-049	Bleeder Valve Seat	1
3	024-2750-050	Retainer Nut	1
4	100-2012-090N	O-Ring, 2-012 90 Duro	1
5	024-2750-051	Bleeder Valve Stem	1

Model “B” Mechanical Setting Tool
Features and Specifications

GEODynamics®

The Model B Mechanical Setting Tool is designed to run and set the CR-MS Sleeve Valve Cement Retainer and BP-MS Bridge Plug.

FEATURES, ADVANTAGES, AND BENEFITS

- Model B incorporates both a stinger seal and built-in snap latch allowing the tool to be latched into the retainer with set-down weight.
- Released with up-strain and/or right hand rotation.
- Sets BP-MS and CR-MS with no additional hardware.
- Can be run time after time by simply moving the drive housing into the running position.
- Easy to operate; low maintenance.
- Quick redress; disassembly is not required every time.
- Bow Spring Centralizer.

Model BP-MS

Model CR-MS

Model B is compatible with:

- Model BP-MS
- Model CR-MS

**no additional hardware is required to operate the equipment*

AVAILABLE FOR
4-1/2” to 13-3/8” CASING

SPECIFICATIONS

CASING		SETTING TOOL		SETTING RANGE		MATCHING TOOL	
OD	WT. (LBS/FT)	PART NUMBER	OD	MIN.	MAX.	RETAINER	“B-1” PLUG
4-1/2”	9.5 - 16.6	017-3593-000	3.593	3.826	4.090	005-3593-000	005-3593-001
5”	11.5 - 18.0	017-3593-000	3.937	4.154	4.560	005-3937-000	005-3937-001
5-1/2”	13.0 - 23.0	017-4312-000	4.312	4.580	5.044	005-4312-000	005-4312-001
6”	10.5 - 12.0	017-5687-000	5.375	5.959	6.135	005-5375-000	005-5375-001
6-5/8”	17 - 34	017-5687-000	5.375	5.959	6.135	005-5375-000	005-5375-001
7”	32 - 38	017-5687-000	5.375	5.959	6.135	005-5375-000	005-5375-001
7”	17 - 35	017-5687-000	5.687	6.004	6.538	005-5687-000	005-5687-001
7-5/8”	20 - 39	017-6312-000	6.312	6.625	7.263	005-6312-000	005-6312-001
8-5/8”	24 - 49	017-7125-000	7.125	7.511	8.248	005-7125-000	005-7125-001
9-5/8”	29.3 - 53.5	017-8125-000	8.125	8.435	9.063	005-8125-000	005-8125-001
10-3/4”	54 - 81	017-9000-000	9.000	9.250	9.660	005-9000-000	005-9000-001
10-3/4”	32.7 - 51	017-9437-000	9.437	9.660	10.192	005-9437-000	005-9437-001
13-3/8”	77 - 102	017-1156-000	11.562	11.633	12.464	005-1156-000	005-1156-001
13-3/8”	48 - 72	017-1200-000	12.000	12.175	12.715	005-1200-000	005-1200-001

Revised: February 12, 2025 2:16 PM

FOR CR-MS SLEEVE VALVE CEMENT RETAINERS OR BP-MS BRIDGE PLUGS

The Model B Mechanical Setting Tool is designed to run and set the CR-MS Sleeve Valve Cement Retainer or BP-MS Bridge Plug. Ease of operation and low maintenance are evident in the design. The tool incorporates both a stinger seal and built-in snap latch allowing the tool to be latched into the retainer with set down weight and released with up-strain or right-hand rotation. This tool can be run time after time by simply moving the drive housing (slip nut on smaller sizes) into place and installing new shear screws. Disassembly and redress are not generally required between runs on the same location. However, upon returning to the shop it is highly recommended that the tool be disassembled and redressed. Sizes are available from 4-1/2” through 13-3/8” casing. The Model BP Mechanical Set Bridge Plug can be run with this tool as well by removing items 23 through 27 and replacing item 1 with item 30.

INSTALLATION OF RETAINER OR BRIDGE PLUG ON THE MODEL B MECHANICAL SETTING TOOL

1. Place top collar of the mechanical setting tool in the vice.
2. Rotate drag housing to the right until it stops on the clutch and stops.
3. Rotate slip retaining sleeve towards the drag housing until it stops.
4. (3.593-4.312 OD) Align the holes in the slip nut with the groove in the lower mandrel.
5. (5.375-12.000 OD) Align the holes in the drive housing with the groove in the lower mandrel.
6. Install shear screws through the slip nut into the groove on the lower mandrel.
7. Loosen clamp on slips enough to slide over upset on slip nut then retighten.
8. Apply grease to the stinger sub and latch.
9. Apply a liberal amount of grease to the retainer bore.
10. Slide retainer / bridge plug over stinger using a quick motion. If necessary, place a block of wood across the end of the retainer or plug and strike with a dead blow hammer.
11. Rotate retainer to make up left hand thread of the latch. Stop when the holes in the latch align with the holes in the body of retainer.
12. Loosen hose clamp on slips, install torque screw furnished with the retainer. Retighten hose clamp.
13. Lubricate upper non-wickered portion of slips with grease.
14. (3.593-4.312 OD) With the slip retaining sleeve butted against the stop ring, rotate the slip retaining sleeve down over the mechanical slips, remove hose clamp, continue to rotate slip retaining sleeve until it bottoms out on wickered portion of slips. Back up slip retaining sleeve ½ turn. Tighten the set screw in slip retaining sleeve.
15. (5.375-12.000 OD) With the adjuster sleeve butted against the stop ring, rotate the adjuster sleeve down over the mechanical slips, remove hose clamp, continue to rotate adjuster sleeve until it bottoms out on wickered portion of slips. Back up slip retaining sleeve ½ turn. Tighten the set screw in adjuster sleeve.
16. Tighten clamp on upper slips for transport purposes.
17. Remove clamp on slips before running in well.

RUNNING INSTRUCTIONS

1. The tool should be run at a moderate speed avoiding sudden stops.
2. Avoid right-hand rotation transmitted to the setting tool. As a precaution, after every 10 stands of tubing or drill pipe, rotate to the left by hand until torque is felt.
3. At the desired setting depth, pick up the tool two (2) feet above the desired setting point. This movement is necessary to provide the required tool stroke to release the upper slips and allow the control nut to move freely.
4. Rotate the work string to the RIGHT sufficiently to transmit 13 TURNS to the tool. This right-hand rotation will thread the control nut off from its matching thread on the mechanical setting tool mandrel and release the control sleeve from running in position.
5. Lower the tool back down to the desired setting depth. The drag springs will support the control sleeve and setting sleeve. The downward motion will push the upper slips from under the setting sleeve. The upper slip segments are then forced out against the casing by the leaf springs attached to the inside of each slip segment. When the upper slips are released, the retaining sleeve is pulled from over the dog, allowing it to move out and release the control latch from the stinger sub body.
6. Pull into the tubing in one continuous pull. See chart below to view the recommended tension. It is important to calculate this tension through tubing stretch. Do not rely on weight indicators.
7. After desired pull is reached, hold tension approximately five minutes, then slack off pipe and set approximately five to ten thousand pounds of weight down ensuring retainer or plug is securely set.

CASING SIZE	MINIMUM TENSION	MAXIMUM TENSION
4-1/2” — 5-1/2”	25,000 lbs.	30,000 lbs.
6” — 7-5/8”	30,000 lbs.	45,000 lbs.
8-5/8” — 13-3/8”	45,000 lbs.	50,000 lbs.

TEST OPTIONS

1. The tubing or drill pipe can be pressure tested by simply pulling up five thousand pounds at the tool and applying pump pressure to the tubing.
2. The retainer can now be tested for seal-off by applying pressure down the annulus or by slacking off five thousand pounds of weight on retainer and applying pump pressure down the tubing and pumping into formation.
    - These tests are performed before the setting tool is released from the cement retainer or bridge plug.
    - If seal-off has not been accomplished, up-strain on the tubing can again be applied and the tools can be retested until seal-off is accomplished.

RELEASING SETTING TOOL FROM CEMENT RETAINER OR BRIDGE PLUG

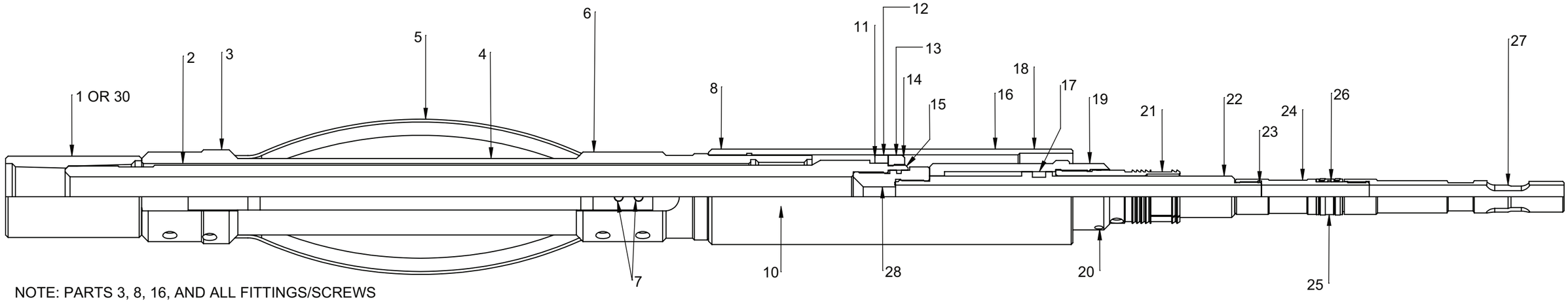
1. Hold an up-strain of approximately one thousand pounds on the tubing.
2. Apply torque to the right until torque screws are sheared. Each screw requires 200 – 400 foot-pounds.
3. Continue right-hand rotation for ten turns or until latch is felt releasing.
    - After releasing from retainer, the setting tool can be re-latched into the retainer with three to five thousand pounds set-down weight.
    - The valve will open when the stinger is fully engaged into the retainer and will close with a 2-inch upstroke at the tool. The stinger will remain sealed in the bore as long as snap-out force is not exceeded.

ASSEMBLY INSTRUCTIONS

NOTE: Grease all threaded connections and o-ring surfaces.

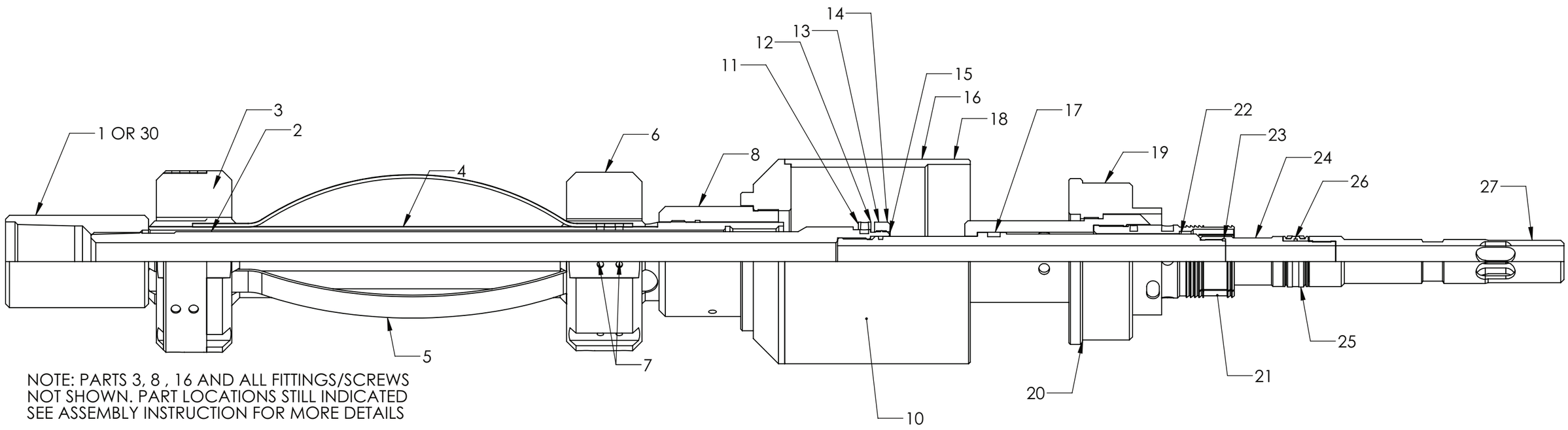
1. Slide the Upper Mandrel (item 2) through the Drag Housing (item 4), entering at the end of drag housing with external threads.
2. Screw the Top Coupling (item 1) onto the Upper Mandrel (item 2). Place the Top Coupling in the vise and tighten with wrench placed in the groove on the Upper Mandrel.
3. Slide on the Stop Ring (item 11). Screw on the Lock Nut (item 14). Install the Set Screw (item 13).
4. Screw the Drag Housing, (Item 4) toward the Stop Ring (item 11). Turn the Stop Ring with the Drag Housing until maximum butting surface is obtained. Make certain it will not jam by backing off the Drag Housing one round. If holes in the Stop Ring and the Upper Mandrel are not aligned at this point, turn the Stop Ring to the right until alignment is obtained. Install the Set Screws (item 12).
5. For 5.375 OD and Larger Sizes only:
    - Slide the Upper Drag Bushing (item 3) over the Drag Housing (item 4) to the far end and insert the Set Screws (item 31).
    - Repeat with the Lower Drag Bushing (item 6).
6. Screw the Adjuster Sleeve (item 8) onto the Drag Housing (item 4) as far as it can go. Start the Set Screw (item 9), but leave it loose.
7. Screw the Slip Retaining Sleeve (item 18) onto Adjuster Sleeve (item 8) as far as it can go. Start the Set Screw (item 10) and tighten.
8. For 3.593-4.312 OD Sizes only:
    - Place the O-Ring (item 15) on outside of the Crossover (item 28).
    - Place another O-Ring (item 29) on the inside of the Crossover.
    - Slide the Slip Nut (item 19) over the Lower mandrel (item 22) and screw the Lower Mandrel into Crossover.
    - Screw the Crossover into the Upper Mandrel and tighten both connections at once.
9. For 5.375 OD and Larger Sizes only:
    - Screw the Slip Nut (item 19) onto Drive Housing (item 16).
    - Slide the Drive Housing over the Lower Mandel (item 22).
    - Install the O-Ring (item 15) on the Lower Mandrel and then screw the Lower Mandrel into the Upper Mandrel and tighten.
10. Screw the Latch (item 21) into the Slip Nut or Drive Housing, depending on the size, and install Set Screws (item 20).
11. Place the O-Ring (item 23) in the Seal Sub (item 24) and screw onto the Lower Mandrel.
12. Place the O-Ring (item 26) in the Molded Seal (item 25) and slide onto Seal Sub.
13. Screw the Shifter Sub (item 27) onto Seal Sub and tighten. Pipe wrench placement for shifter sub is just above groove.
14. Shear Screws (item 17) are installed after setting tool is stabbed into retainer or plug.
15. Slide the Drag Spring (item 5) under the cover on the Upper Drag Bushing (item 3) and then align holes in the Drag Spring and the Lower Drag Bushing (item 6). Install Screws (item 7).

MODEL B ASSEMBLY DIAGRAM FOR 017-3593-000



NOTE: PARTS 3, 8, 16, AND ALL FITTINGS/SCREWS
NOT SHOWN. PART LOCATIONS STILL INDICATED.
SEE ASSEMBLY INSTRUCTIONS FOR MORE DETAILS.

MODEL B ASSEMBLY DIAGRAM FOR 017-8125-000



NOTE: PARTS 3, 8 , 16 AND ALL FITTINGS/SCREWS
NOT SHOWN. PART LOCATIONS STILL INDICATED
SEE ASSEMBLY INSTRUCTION FOR MORE DETAILS

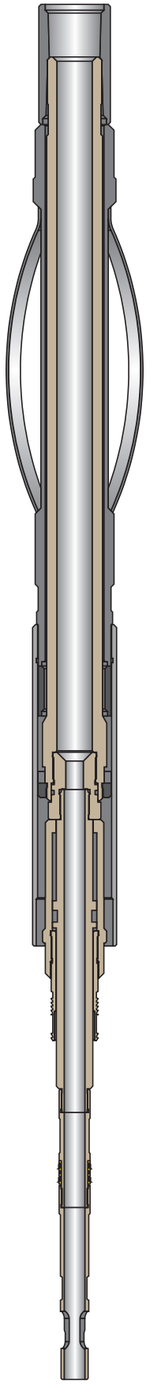
Model “B” Mechanical Setting Tool
Assembly Parts Lists and Hardware Summary

GEODynamics®

PARTS LISTS

Assembly Complete, Model B Mechanical Setting Tool			017-3593-000	017-4312-000	017-5687-000		017-6312-000	017-7125-000	017-8125-000	017-9000-000	017-9437-000	017-1043-000	017-1200-000
Item	**QTY**	**Description**	**3.593-3.937**	**4.132**	**5.375**	**5.687**	**6.312**	**7.125**	**8.125**	**9.000**	**9.437**	**10.437**	**12.000**
1	1	Top Coupling	016-3500-015		016-5610-015								
2	1	Upper Mandrel	016-3500-016										
3	1	Upper Drag Bushing	Not Required		016-5610-019			016-6960-019	016-7710-019	016-8710-019	016-9500-019	016-9500-020	016-1200-019
4	1	Drag Housing	017-3593-017										
5	*	Drag Spring	016-3500-021 (3)		016-4240-021 (3)			016-4240-021 (6)					
6	1	Lower Drag Bushing	Not Required		016-5610-023			016-6960-023	016-7710-023	016-8710-023	016-9500-023	016-9500-022	016-1200-023
7	*	Button Head Cap Screw	5/16 - 18 X 5/16 (6)		5/16 - 18 X 1/2 (6)			5/16 - 18 X 1/2 (12)					
8	1	Adjuster Sleeve	Not Required		017-5687-022								
9	1	Socket Head Set Screw	Not Required		5/16 - 18 X 3/8								
10	*	Socket Head Set Screw	5/16-18 X 3/16 (2)	5/16-18 X 3/8 (2)	5/16 - 18 X 3/8 (1)								
11	1	Stop Ring	016-3500-025										
12	4	Socket Head Set Screw	5/16 - 18 X 3/8										
13	1	Socket Head Set Screw	5/16 - 18 X 3/8										
14	1	Lock Nut	016-3500-026										
15	1	O-Ring	2-224										
16	1	Drive Housing	Not Required		017-5687-037								
17	3	Shear Screw	016-3500-040										
18	1	Slip Retaining Sleeve	017-3593-024	017-4312-024	017-5687-024		017-6312-024	017-7125-024	017-8125-024	017-9000-024	017-9437-024	017-1043-024	017-1200-024
19	1	Slip Nut	017-3593-029		017-5687-029		017-6312-029	017-7125-029	017-8125-029	017-9000-029	017-9437-029	017-1043-029	017-1200-029
20	4	Socket Head Set Screw	5/16 - 18 X 3/8		5/16 - 18 X 3/8					5/16 -18 X 5/8			
21	1	Latch	017-3593-031		017-5687-031								
22	1	Lower Mandrel	017-3593-028		017-5687-028								
23	1	O-Ring	2-023		2-123								
24	1	Seal Sub	017-3593-032		017-5687-032								
25	1	Molded Seal	016-3500-033		016-5610-033								
26	1	O-Ring	2-024		2-130								
27	1	Shifter Sub	017-3593-034		017-5687-034								
28**	1	Cross-Over	016-3500-035		Not Required								
29**	1	O-Ring	2-122		Not Required								
30**	1	Ported Coupling (Option) ***	016-3500-014		016-5610-014								
31**	12	Set Screws for Drag Bushings	Not Required		1/2-20 X 1”			1/2-20 X 1-3/8"	1/2-20 X 1-1/2"	1/2-20 X 1-7/8"	1/2-20 X 2-1/4"	1/2-20 X 2-3/4"	1/2-20 X 3-1/2"

** Quantity for this item is noted beside the part number. ** Not shown in illustration. *** Used for tubing filling when running mechanical set bridge plugs. It replaces item 1.*



HARDWARE SUMMARY

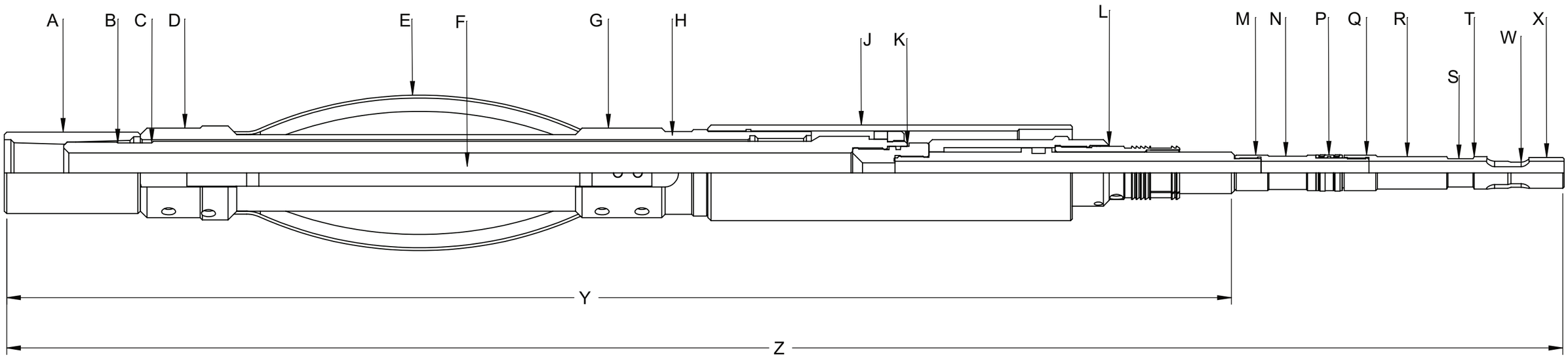
3.937 and Smaller	
Tools Size / Hardware Description	**QTY**
5/16 - 18 X 5/16 button head cap screw	6
5/16 - 18 X 3/16 socket head set screw	2
5/16 - 18 X 3/8 socket head set screw	9
7/16 - 14 X 5/8 1215 shear screw	3

4.132	
Tools Size / Hardware Description	**QTY**
5/16 - 18 X 5/16 button head cap screw	6
5/16 - 18 X 3/8 socket head set screw	11
7/16 - 14 X 5/8 1215 shear screw	3

5.375 and Larger	
Tools Size / Hardware Description	**QTY**
5/16 - 18 X 1/2 button head cap screw	6 (12 for 6.312+)
5/16 - 18 X 3/8 socket head set screw	11 (7 for 9.000+)
5/16 - 18 X 5/8 socket head set screw	4
7/16 - 14 X 5/8 1215 shear screw	3

Revised: February 12, 2025 2:16 PM

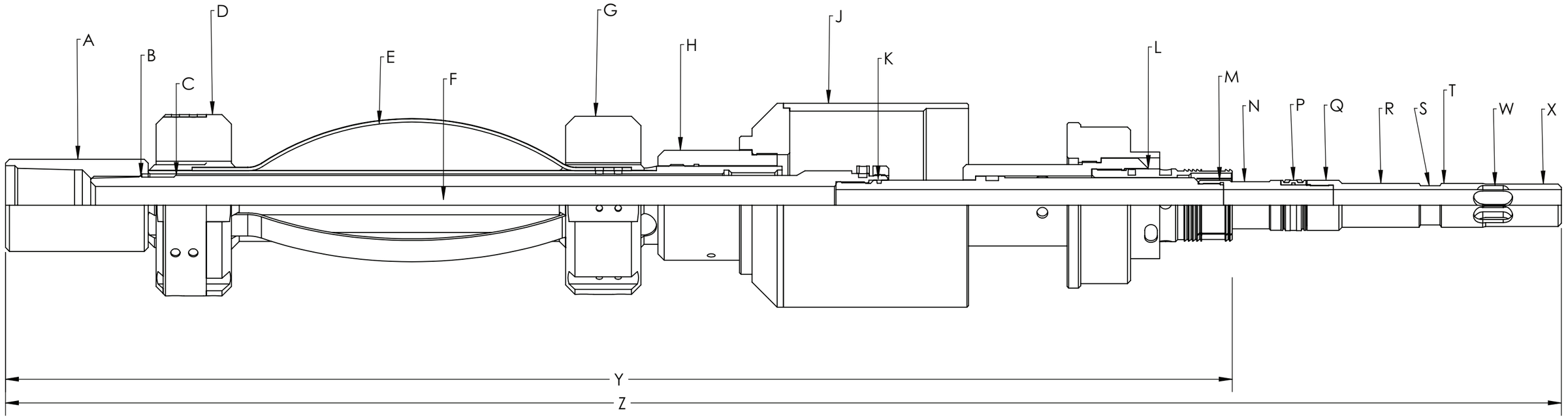
MODEL B DIMENSIONAL DATA DIAGRAM FOR 017-3593-000



DIMENSIONAL DATA

Callout	3.593-3.937	4.132	5.375 / 5.687	6.312	7.125	8.125	9.000	9.437	10.437	12.000
A	3.062		3.672							
B	2.250									
C	2.375									
D	3.500		5.000							
E	6.250	6.959	8.374		9.260	10.600	11.194	12.038	12.960	14.535
F	1.500									
G	3.375		4.875		5.750	7.093	7.687	8.531	9.468	11.031
H	3.125		4.375							
J	3.745	4.312	5.375	6.312	7.125	8.125	9.000	9.437	10.437	12.000
K	2.750		4.125	4.593	5.593	6.593		7.593		10.093
L	2.000		2.900							
M	1.320		1.990							
N	1.250		1.875							
P	1.320		1.990							
Q	1.320		1.990							
R	1.250		1.875							
S	1.062		1.562							
T	1.218		1.750							
W	1.156		1.687							
X	0.750		1.250							
Y	45.031		47.640							
Z	58.250		61.062							

MODEL B DIMENSIONAL DATA DIAGRAM FOR 017-8125-000



DIMENSIONAL DATA

Callout	3.593-3.937	4.132	5.375 / 5.687	6.312	7.125	8.125	9.000	9.437	10.437	12.000
A	3.062		3.672							
B	2.250									
C	2.375									
D	3.500		5.000							
E	6.250	6.959	8.374		9.260	10.600	11.194	12.038	12.960	14.535
F	1.500									
G	3.375		4.875		5.750	7.093	7.687	8.531	9.468	11.031
H	3.125		4.375							
J	3.745	4.312	5.375	6.312	7.125	8.125	9.000	9.437	10.437	12.000
K	2.750		4.125	4.593	5.593	6.593	7.593			10.093
L	2.000		2.900							
M	1.320		1.990							
N	1.250		1.875							
P	1.320		1.990							
Q	1.320		1.990							
R	1.250		1.875							
S	1.062		1.562							
T	1.218		1.750							
W	1.156		1.687							
X	0.750		1.250							
Y	45.031		47.640							
Z	58.250		61.062							

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SLEEVE VALVE RETAINERS AND BRIDGE PLUGS

The following is a general guide for the most successful drill out technique:

The tool should be run at a moderate speed avoiding sudden stops.

- **Bit** – New, short tooth medium hard formation rock bit. If a mill is necessary, a concave face junk-mill should be used. A flat bottom mill is not recommended.
- **Rotary speed** – 80 R.P.M. normal (120 R.P.M. as required).
- **Weight on bit** – Apply 5,000 – 7,000 lbs. until the top end of the center body of retainer or plug is drilled away (3-5 inches for 4 1/2" thru 7" and 5-9 inches for 7 5/8" and larger tools). Additional weight can now be applied across the full bit diameter 2,000-3,000lb. per inch of bit diameter (i.e. 4 ½ bit use 9,000 – 13,500 lbs. of weight).
- **Drill Collars** – Minimum of 8 for 4 1/2 thru 5 1/2 tools – 12 or more for 7" and larger tools.

Spudding the work string and variations in rotary speed and set down weight should be used to aid in breaking up large metal parts and preventing bit "tracking". One or more junk baskets should be used above the bit when normal circulation is employed.

Power Charge Ignitors
Ground Clip and Ground Wire

GEODynamics power charge ignitors take advantage of a DUAL RESISTOR. Tests have proven this ignitor to be more reliable, even with a weaker ground. With resistances of 149, 489, 1,200, or 2,000 ohms, these ignitors perform successfully between 0.380 and 0.440 amps.

TECHNICAL INFORMATION

Energetic Content		
Pyrotechnic Mix	38.5 grains	2,495 mg

Temperature Rating		
Time	1 hr.	
Temperature	425°F	218°C

Electrical Limits	
No Fire Current	0.2A
All Fire Current	0.8A
Resistance	51Ω

GROUND CLIP BENEFITS

- Eliminates the need for ground wires.
- No need to wrap the ground wire in just the right position to make a good ground.
- No ground wire creeping up and grounding to the spring while downhole or during tool assembly.
- Easy installation; remove the pre-attached temporary ground wire and place the ignitor into the firing head.

IMPORTANT: Before inserting the ignitor, the 1/2" hole (bore) (located in the firing head) must be dry and clean.

DT-0425-101
Power Charge Ignitor with Ground Clip
(Black Insulator)

IMPORTANT: Remove temporary shunt wire before using.

USAGE, STORAGE, AND DISPOSAL

WARNING
Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)

DISPOSAL

Ignitors should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

DT-0425-102
Power Charge Ignitor with Ground Wire
(Red Insulator)

Power Charge Ignitors
S1® Ignitor Assemblies

The S1® Ignitor and Crossover addresses the number one cause of failure to ignite power charges in zonal isolation perforating operations. The ignitor provides the thermal escalation required to initiate the pyrotechnic compound of a power charge. Conventional power charge ignitors have high failure rates due to reliance on spring contacts for the positive connection and friction contact with the firing head for the ground connection. The S1 ignitor is installed into the switch sub in the space usually occupied by an electronic switch.

TECHNICAL INFORMATION

Energetic Content	
Pyrotechnic Mix	38.5 grains
	2,495 mg

Temperature Rating	
Time	1 hr.
Temperature	350°F
	177°C

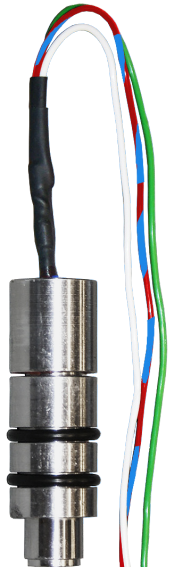
Pressure Rating	
Maximum Pressure	20,000 psi
	1,378.95 bar

Electrical Limits	
No Fire Current	0.2A
All Fire Current	0.8A
Resistance	51Ω

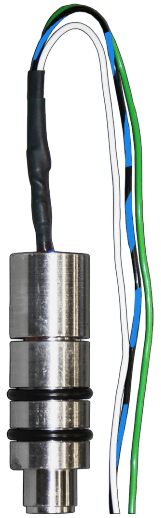
FEATURES/BENEFITS

- Patented technology provides wired connections back to the wireline shooting panel, using same wiring as the switches and perforating gun detonators.
- Grounded—safer and reliable; no loss of ground due to galvanic reactions.
- Increased reliability initiation; no loss of connection during conveyance.
- Fewer components; eliminates problem-related quick-change subs.
- Shortens the tool string.
- Crossover connection provides compatibility with existing setting tools.

S1 Ignitor, Feed-Through
DT-0425-103-FT
O-Rings: OR-V90D-113



S1 Ignitor, Negative
DT-0425-104-N
O-Rings: OR-V90D-113



S1 Ignitor, Positive
DT-0425-105-P
O-Rings: OR-V90D-113

USAGE, STORAGE, AND DISPOSAL

WARNING
Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)

DISPOSAL

Ignitors should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

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Power Charges
Product Overview

GEODynamics

GEODynamics' power charges and ignitors are used in numerous applications. Operators regularly specify them for use in horizontal wells. Our power charges are popular with operators due to their shear time reliability and consistency. Service companies appreciate the ease of cleaning for redress and the extended tool life.

BAKER STYLE #10 AND #20

	ITEM	DESCRIPTION	TEMP RATING
LOW TEMP	PC-1312-010	#10 Standard w/ built in secondary	250˚ F FOR 1 HOUR
	PC-1625-020	#20 Standard w/ built in secondary	

	ITEM	DESCRIPTION	TEMP RATING
HIGH TEMP	PC-1312-410	#10 Standard w/ built in secondary	400˚ F FOR 1 HOUR
	PC-1625-420	#20 Standard w/ built in secondary	

GO STYLE

	ITEM	DESCRIPTION	TEMP RATING
LOW TEMP	PC-1500-201	Power Charge, 1-1/2" - 1-11/16" Shorty	250˚ F FOR 1 HOUR
	PC-2500-201	Power Charge, 2-1/2" Shorty	
	PC-3500-201	Power Charge, 3-1/2" Shorty	
	PC-3625-201	Power Charge, 3-5/8" Compact	
	PC-3500-601	Economy Power Charge, 3-1/2" Shorty	300˚ F FOR 1 HOUR
	PC-3625-601	Economy Power Charge, 3-5/8" Compact	

	ITEM	DESCRIPTION	TEMP RATING
HIGH TEMP	PC-1500-401	Power Charge, 1-1/2" Shorty	400˚ F FOR 1 HOUR
	PC-2500-401	Power Charge, 2-1/2" Shorty	
	PC-3500-401	Power Charge, 3-1/2" Shorty	
	PC-3625-401	Power Charge, 3-5/8" Compact	

Power Charges
#10 Baker Standard Style, Low Temp, PC-1312-010

TECHNICAL INFORMATION

Temperature Rating (Low Temp)		
Time	1 hr.	
Temperature	250°F	121°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
38,000 #	40 seconds ± 15

QC TESTING INFORMATION

GEODynamics' power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual Baker #10 setting tool with a 38,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the "Time to Shear" specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 38,000# shear stud at ambient temperatures.

COMPATIBILITY INFORMATION

Baker style #10 power charges have been tested with Baker primary and secondary pellet, as well as GO-style ignitor with secondary pellet.

It is not a requirement to use the secondary pellet in combination with the GO-style ignitor. Our ignitor provides adequate initiation for the power charge to burn successfully without the aid of a secondary pellet.

USAGE, STORAGE, AND DISPOSAL

WARNING

Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

PC-1312-010
#10 Baker Standard Style, Low Temp

Power Charges
#20 Baker Standard Style, Low Temp, PC-1625-020

TECHNICAL INFORMATION

Temperature Rating (Low Temp)		
Time	1 hr.	
Temperature	250°F	121°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
60,000 #	40 seconds ± 15

QC TESTING INFORMATION

GEODynamics' power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual Baker #20 setting tool with a 60,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the "Time to Shear" specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 60,000# shear stud at ambient temperatures.

COMPATIBILITY INFORMATION

Baker style #20 power charges have been tested with Baker primary and secondary pellet, as well as GO-style ignitor with secondary pellet.

It is not a requirement to use the secondary pellet in combination with the GO-style ignitor. Our ignitor provides adequate initiation for the power charge to burn successfully without the aid of a secondary pellet.

PC-1625-020
#20 Baker Standard Style,
Low Temp

USAGE, STORAGE, AND DISPOSAL

WARNING
Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

Power Charges
1-1/2” Shorty and 1-11/16” Shorty, Low Temp, PC-1500-201

TECHNICAL INFORMATION

Temperature Rating (Low Temp)		
Time	1 hr.	
Temperature	250°F	121°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
13,000 #	35 seconds ± 15

PC-1500-201
1-1/2” Shorty and
1-11/16” Shorty, Low Temp

QC TESTING INFORMATION

GEODynamics’ power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual 1-1/2” Shorty setting tool with a 13,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the “Time to Shear” specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 13,000# shear stud at ambient temperatures.

USAGE, STORAGE, AND DISPOSAL

WARNING
Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

TECHNICAL INFORMATION

Temperature Rating (Low Temp)		
Time	1 hr.	
Temperature	250°F	121°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
38,000 #	30 seconds ± 10

PC-2500-201
2-1/2” Shorty, Low Temp

QC TESTING INFORMATION

GEODynamics’ power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual 2-1/2” Shorty setting tool with a 38,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the “Time to Shear” specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 38,000# shear stud at ambient temperatures.

USAGE, STORAGE, AND DISPOSAL

WARNING
Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

Power Charges
3-1/2” Shorty, Low Temp, PC-3500-201

TECHNICAL INFORMATION

Temperature Rating (Low Temp)		
Time	1 hr.	
Temperature	250°F	121°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
60,000 #	30 seconds ± 10

QC TESTING INFORMATION

GEODynamics’ power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual 3-1/2” Shorty setting tool with a 60,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the “Time to Shear” specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 60,000# shear stud at ambient temperatures.

PC-3500-201
3-1/2” Shorty, Low Temp

USAGE, STORAGE, AND DISPOSAL

WARNING
Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

Power Charges
3-5/8” Compact, Low Temp, PC-3625-201

TECHNICAL INFORMATION

Temperature Rating (Low Temp)		
Time	1 hr.	
Temperature	250°F	121°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
30,000 #	35 seconds ± 10
60,000 #	60 seconds ± 10

QC TESTING INFORMATION

GEODynamics’ power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual 3-5/8” Compact setting tool with a 60,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the “Time to Shear” specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 60,000# shear stud at ambient temperatures.

TEST TOOL INFORMATION

Many customers find it interesting that we have been able to use the same 3-5/8” Compact setting tool, with all of its original components, for more than **300** test shots with 50,000# shear studs.

USAGE, STORAGE, AND DISPOSAL

WARNING

Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

PC-3625-201
3-5/8” Compact, Low Temp

Power Charges
3-1/2” Shorty, Economy Low Temp, PC-3500-601

TECHNICAL INFORMATION

Temperature Rating (Low Temp)		
Time	1 hr.	
Temperature	300°F	149°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
60,000 #	30 seconds ± 10

QC TESTING INFORMATION

GEODynamics’ power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual 3-1/2” Shorty setting tool with a 60,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the “Time to Shear” specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 60,000# shear stud at ambient temperatures.

PC-3500-601
3-1/2” Shorty,
Economy Low Temp

USAGE, STORAGE, AND DISPOSAL

WARNING
Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

Power Charges
3-5/8” Compact, Economy Low Temp, PC-3625-601

TECHNICAL INFORMATION

Temperature Rating (Low Temp)		
Time	1 hr.	
Temperature	300°F	149°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
30,000 #	25 seconds ± 10
60,000 #	50 seconds ± 10

QC TESTING INFORMATION

GEODynamics’ power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual 3-5/8” Compact setting tool with a 60,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the “Time to Shear” specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 60,000# shear stud at ambient temperatures.

TEST TOOL INFORMATION

Many customers find it interesting that we have been able to use the same 3-5/8” Compact setting tool, with all of its original components, for more than **300** test shots with 50,000# shear studs.

USAGE, STORAGE, AND DISPOSAL

WARNING

Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

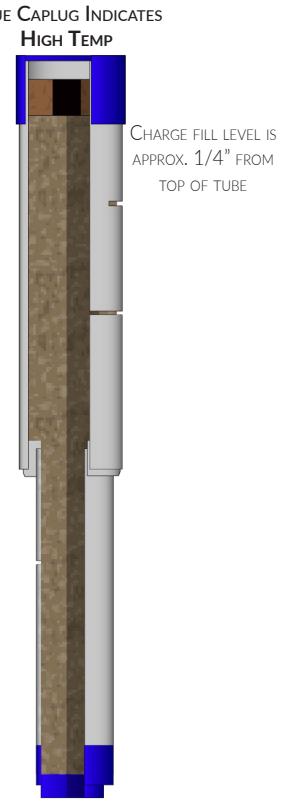
PC-3625-601
3-5/8” Compact,
Economy Low Temp

Power Charges
#10 Baker Standard Style, High Temp, PC-1312-410

TECHNICAL INFORMATION

Temperature Rating (High Temp)		
Time	1 hr.	
Temperature	400°F	204°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
38,000 #	50 seconds ± 15



PC-1312-410
#10 Baker Standard Style,
High Temp

QC TESTING INFORMATION

GEODynamics' power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual Baker #10 setting tool with a 38,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the "Time to Shear" specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 38,000# shear stud at ambient temperatures.

COMPATIBILITY INFORMATION

Baker style #10 power charges have been tested with Baker primary and secondary pellet, as well as GO-style ignitor with secondary pellet.

It is not a requirement to use the secondary pellet in combination with the GO-style ignitor. Our ignitor provides adequate initiation for the power charge to burn successfully without the aid of a secondary pellet.

USAGE, STORAGE, AND DISPOSAL

WARNING
Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

Power Charges
#20 Baker Standard Style, High Temp, PC-1625-420

TECHNICAL INFORMATION

Temperature Rating (High Temp)		
Time	1 hr.	
Temperature	400°F	204°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
60,000 #	1 min. 15 seconds ± 15

QC TESTING INFORMATION

GEODynamics' power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual Baker #20 setting tool with a 60,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the "Time to Shear" specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 60,000# shear stud at ambient temperatures.

COMPATIBILITY INFORMATION

Baker style #20 power charges have been tested with Baker primary and secondary pellet, as well as GO-style ignitor with secondary pellet.

It is not a requirement to use the secondary pellet in combination with the GO-style ignitor. Our ignitor provides adequate initiation for the power charge to burn successfully without the aid of a secondary pellet.

USAGE, STORAGE, AND DISPOSAL

WARNING

Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

PC-1625-420
#20 Baker Standard Style,
High Temp

Power Charges
1-1/2” Shorty and 1-11/16” Shorty, High Temp, PC-1500-401

TECHNICAL INFORMATION

Temperature Rating (High Temp)		
Time	1 hr.	
Temperature	400°F	204°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
13,000 #	35 seconds ± 15

QC TESTING INFORMATION

GEODynamics’ power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual 1-1/2” Shorty setting tool with a 13,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the “Time to Shear” specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 13,000# shear stud at ambient temperatures.

USAGE, STORAGE, AND DISPOSAL

WARNING

Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

Blue Caplug Indicates High Temp

Blue Paint Indicates High Temp

PC-1500-401
1-1/2” Shorty and
1-11/16” Shorty, High Temp

TECHNICAL INFORMATION

Temperature Rating (High Temp)		
Time	1 hr.	
Temperature	400°F	204°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
38,000 #	25 seconds ± 10

QC TESTING INFORMATION

GEODynamics’ power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual 2-1/2” Shorty setting tool with a 38,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the “Time to Shear” specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 38,000# shear stud at ambient temperatures.

USAGE, STORAGE, AND DISPOSAL

WARNING

Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

Blue Caplug Indicates High Temp

Blue Paint Indicates High Temp

PC-2500-401
2-1/2” Shorty, High Temp

Power Charges
3-1/2” Shorty, High Temp, PC-3500-401

TECHNICAL INFORMATION

Temperature Rating (High Temp)		
Time	1 hr.	
Temperature	400°F	204°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
60,000 #	40 seconds ± 10

QC TESTING INFORMATION

GEODynamics’ power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual 3-1/2” Shorty setting tool with a 60,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the “Time to Shear” specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 60,000# shear stud at ambient temperatures.

Blue Caplug Indicates
High Temp

Charge fill level is approx. 3/4” from top of tube

Blue Paint Indicates
High Temp

PC-3500-401
3-1/2” Shorty, High Temp

USAGE, STORAGE, AND DISPOSAL

WARNING
Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

Power Charges
3-5/8” Compact, High Temp, PC-3625-401

TECHNICAL INFORMATION

Temperature Rating (High Temp)		
Time	1 hr.	
Temperature	400°F	204°C

Shear Time Information	
Shear Stud Size	**Time to Shear***
30,000 #	1 min. 15 sec. ± 15
60,000 #	1 min. 35 sec. ± 15

QC TESTING INFORMATION

GEODynamics’ power charges are produced in a batch process and tested per our strict QC testing procedure.

The test procedure is performed by loading the power charge into an actual 3-5/8” Compact setting tool with a 60,000# shear stud, and igniting the power charge with our power charge ignitor. Every test is timed and recorded. A batch that fails to shear within the “Time to Shear” specification is withheld for root-cause analysis before production can resume.

***Time to Shear** is based on tests using a 60,000# shear stud at ambient temperatures.

TEST TOOL INFORMATION

Many customers find it interesting that we have been able to use the same 3-5/8” Compact setting tool, with all of its original components, for more than **300** test shots with 50,000# shear studs.

USAGE, STORAGE, AND DISPOSAL

WARNING

Use of explosives by untrained personnel is extremely dangerous and may injure or kill.

SHELF LIFE

- 5 YEARS STORED UNOPENED IN ORIGINAL PACKAGING
- TEMPERATURE RANGE: +41°F to +95°F (+5°C to +35°C)
- RELATIVE HUMIDITY: MAX 65%
- GOOD VENTILATION

DISPOSAL

Power charges should be destroyed only by AUTHORIZED persons (COMPLIANT WITH NATIONAL AND STATE LAW AND REGULATION). Refer to Section 13 of the product SDS for disposal considerations.

Blue Caplug Indicates High Temp

Charge fill level is approx. 1/4” from top of tube

Blue Paint Indicates High Temp

PC-3625-401
3-5/8” Compact, High Temp

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NOTES

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