



# GEN 2 Double Block & Bleed ISO Test Plugs

## Operating Manual

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## ABOUT US

Superior Portable Machine Tools (SPR) is your go-to source for specialty tools and equipment in the Oil and Gas, Mining, Heavy Construction, Shipbuilding, Aerospace, Defense, and Power Generation industries. With a strong presence across locations in the US and Canada, as well as a global network of dealers, we proudly offer a comprehensive range of cutting-edge machinery. From portable line boring machines and auto bore welders to linear/gantry and rotary milling machines, our lineup covers all your needs. We also provide top-of-the-line Aggressive® clamshells (pipe cutters), ID/OD flange facers, end-prep bevelers, and weld isolation and test plugs. Additionally, our expertise extends to the production and maintenance of heat exchangers, condensers, and boilers through our partnership with Maus Italia. SPR's engineering group is ready to customize existing products or create tailor-made solutions from scratch, and we excel in precision grinding and tooling services, offering a wide assortment of custom and standard tool bits.

We go above and beyond by providing value-added engineering, comprehensive training programs, and unwavering operational support. Rest assured, we prioritize the highest health, safety, and environmental standards in the industry. Our extensive experience in service, deep understanding of equipment requirements, and unwavering dedication to customer satisfaction are the pillars of our commitment to delivering exceptional equipment and unmatched customer care.



**WARNING:**

SPR is committed to continued product improvement; therefore, the machine you received may be slightly different than the one described herein. This manual and the information provided is a basic guideline for our customers. SPR will do its best to ensure that the information and procedures contained in this manual are correct and up-to-date. Superior cannot guarantee that the information and procedures contained herein are correct for all applications or situations.

The contents of this manual are subject to change without notice. It is the obligation of the user to read all information in this manual, become familiar with the equipment to be used, and exercise the utmost care in equipment operation. **Do not make any modifications to this equipment. Any modifications will void all warranty claims, as well as increase the risk of injury or harm.** Do not operate this equipment if all parts are not functioning at 100% efficiency. Notify us immediately for any needed repairs.



***Note: SPR will supply all repair and replacement parts necessary for maintenance and operation of this machine. For repair, service, or additional information, please locate repair and replacement part description/part numbers within the O&M manual in the exploded view section and contact us for ordering.***

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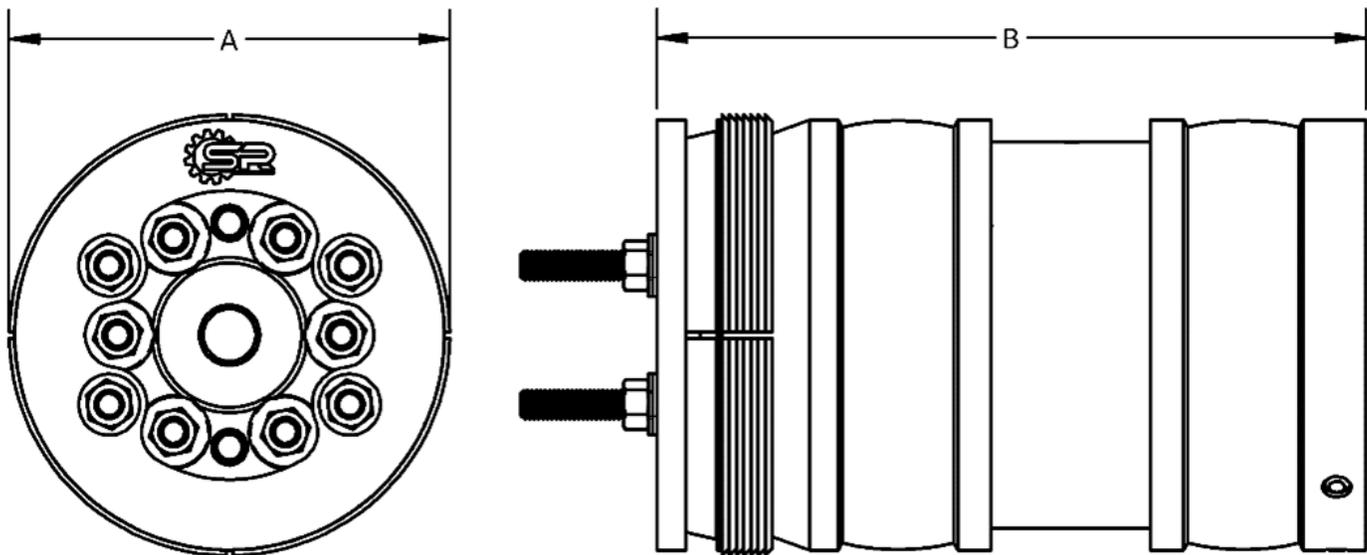
## INTRODUCTION

Superior's Double Block and Bleed Test Plugs are designed to provide an isolation barrier on localized field repairs and modifications. Superior's plug incorporates unique features that make it the most application efficient tool on the market while keeping safety the number one goal.

Superior isolation plugs allow the end-user to isolate, monitor, and vent hydrocarbon vapors to a safe area when performing welded connections or making repairs in hot-work areas.

After welding is completed, the annular of the tool is positioned between the welded connections and filled with preferred media to perform a hydrostatic test.

Superior's proprietary seals are a solid molded blend of Buna-N with less carbon black that allows for more flexibility and less splitting, therefore, increasing the chance to seal in less desirable ID pipe surfaces and reducing or eliminating the loss of the isolation.



## SAFETY PRECAUTIONS

Before using SPR's double block and bleed test plugs, read the entire operating manual. Inspect the plugs for any damage.

It is important to read information on the data tag and/or the engraving attached to or on the face of the tools for maximum design rated pressures, range of use and installation specifications. Each tool is schedule and size specific; make sure that you are using the correct size and schedule tool for the pipe in the application. Tools made for multi-schedule pipe sizes will not function or perform to their rated specifications in all pipe schedules for every application. Always consult the tool manufacturer before using tool outside its intended range of use. Pressure rating on the tool represents the heaviest wall to achieve maximum test pressure.

## WELD TESTING AND ISOLATION APPLICATIONS

Superior Plant Rentals requires that all pressure and leak tests or vapor barriers for isolation work be performed with water or a non-compressible liquid. Air is a compressible fluid that can store large amounts of energy at high pressures. A rapid release of air during an isolation procedure failure can send even large objects such as piping sections, Flanges or tools flying towards an operator at high speeds.

Always monitor the thru-port bypass during welding to ensure that no pressure build up behind the tool is occurring. Stop any hot work immediately if pressure builds and correct the problem before continuing with any hot work. User should always refer to their company safety and operating procedures.



**After each test or isolation, bleed off any pressure being held within the joint tester annulus, bypass pressure and any other pressure in the line before loosening the seal actuation nuts. Failure to bleed off pressure before tool removal could cause serious bodily injury to the operator and any bystanders. In any applications utilizing nitrogen upstream of the isolation tool, make sure that the bypass line or upstream side of the tool has not frozen or became plugged which may lead to a faulty monitoring pressure through the bypass. It is the responsibility of the installer to ensure that all possible pressure has been removed on the upstream side of the tool before removal. Always verify that the plumbing components and lines that could be blocked with debris, sand, thread sealant etc. are free and clean.**



**These instructions are for reference only and not to be used in place of the company safe operating procedures, application procedure, or JSA!!**

## GENERAL SAFETY PRECAUTIONS

The customer shall ensure that only people thoroughly trained in safe work procedures operate these test plugs. Safe working procedures are required when operating machine tools. The misuse of this tools could result in severe injury or death.

Before operating these tools, read the entire operating manual. Inspect test plugs and accessories for any damage.



**WARNING!** DO NOT leave test plugs unattended while in operation.



**WARNING!** Beware of pinch points. Keep all body parts clear of the test plugs while running.



**WARNING!**  
**MOVING PARTS.**

Keep hands, loose clothing, and hair away from rotating or moving parts. Disconnect the air supply from the machine and unplug all equipment prior to adjusting or servicing. If electric, remove power from the machine prior to adjusting or servicing.



**WARNING! ELECTRICAL SHOCK.**

Possible shock if not handled properly.



**WARNING! KEEP DRY.**

Keep all equipment and components away from any water source.



**WARNING! EYE PROTECTION.**

Eye protection must be worn while operating or working near powered equipment.



**WARNING! EAR PROTECTION.**

Ear protection should be worn while operating or working near loud equipment.



**WARNING! FOOT PROTECTION.**

Foot protection must be worn while operating or working near heavy equipment.

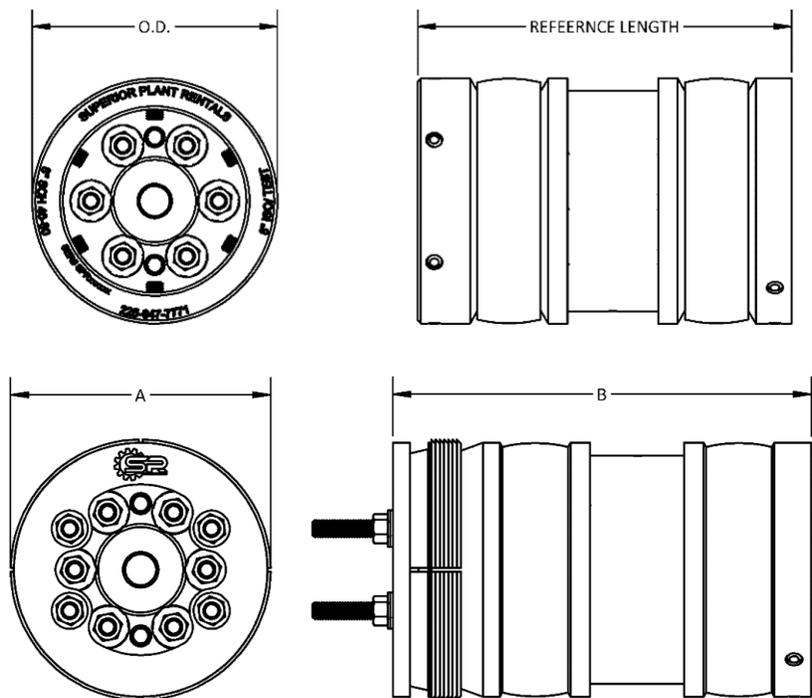
# SPECIFICATION TABLES

Pipe Size	Pipe Schedule	Nominal Pipe I.D.		Plug O.D.		Tool Working Pressure		Tool Model	Length		Weight	
	Inch	Inch	(mm)	Inch	(mm)	PSI	(bar)		Inch	(mm)	lbs	(kg)
2	40	2.067	52.50	1.963	49.9	2,500	172	SPR-G2-2.0" 40	5.03	127.8	1.7	0.8
	80	1.939	49.25	1.844	46.8	2,500	172	SPR-G2-2.0" 80	5.03	127.8	1.7	0.8
3	40	3.068	77.93	2.94	74.7	2,500	172	SPR-G2-3.0" 40/80	5.18	131.6	3.3	1.5
	80	2.9	73.66	2.775	70.5	2,500	172	SPR-G2-3.0" 40/80	5.37	136.4	3.4	1.5
	160	2.624	66.65	2.448	62.2	2,500	172	SPR-G2-3.0" 160	5.5	139.7	3	1.4
	XXS	2.3	58.42	2.175	55.2	2,500	172	SPR-G2-3.0" XXS	5.16	131.1	2.4	1.1
4	40	4.026	102.26	3.865	98.2	2,500	172	SPR-G2-4.0" 40	5.64	143.3	5.27	2.4
	80	3.826	97.18	3.625	92.1	2,500	172	SPR-G2-4.0" 80	5.74	145.8	5.52	2.5
	120	3.624	92.05	3.48	88.4	2,500	172	SPR-G2-4.0" 120	4.92	125.0	4.6	2.1
	160	3.438	87.33	3.29	83.6	2,500	172	SPR-G2-4.0" 160	5.09	129.3	4.27	1.9
6	10	6.357	161.47	6.158	156.4	2,500	172	SPR-G2-6.0" 5-10	6.638	168.6	19	8.6
	40	6.065	154.05	5.563	141.3	2,500	172	SPR-G2-6.0" 40/80	7.7	195.6	14.6	6.6
	80	5.761	146.33	5.563	141.3	2,500	172	SPR-G2-6.0" 40/80	7.7	195.6	14.6	6.6
	120	5.501	139.73	5.375	136.5	2,500	172	SPR-G2-6.0" 120	7	177.8	15.3	6.9
	XXS	4.897	124.38	4.7	119.4	2,500	172	SPR-G2-6.0" XXS	7.38	187.5	11.4	5.2
8	10	8.329	211.56	8.2	208.28	2,500	172	SPR-G2-8.0" 5/10	7.78	197.61	29.8	13.5
	40	7.981	202.72	7.438	188.9	2,500	172	SPR-G2-8.0" 40/80	8.05	204.5	23.8	10.8
	80	7.625	193.68	7.438	188.9	2,500	172	SPR-G2-8.0" 40/80	8.05	204.5	23.8	10.8
	XXS	6.875	174.63	6.625	168.3	2,500	172	SPR-G2-8.0" XXS	7.71	195.8	19.8	9.0
10	40	10.02	254.51	9.375	238.1	2,500	172	SPR-G2-10.0" 40/80	8.11	206.0	39.4	17.9
	80	9.562	242.87	9.375	238.1	2,500	172	SPR-G2-10.0" 40/80	8.11	206.0	39.4	17.9
	160	8.5	215.90	8.25	209.55	2,500	172	SPR-G2-10.0" XXS-160	6.78	172.21	28.4	12.8
12	20	12.25	311.15	11.125	282.6	2,500	172	SPR-G2-12.0" 40/80	8.688	220.7	54.75	24.8
	30	12.09	307.09	11.125	282.6	2,500	172	SPR-G2-12.0" 40/80	8.688	220.7	54.75	24.8
	STD	12	304.80	11.125	282.6	2,500	172	SPR-G2-12.0" 40/80	8.688	220.7	54.75	24.8
	40	11.938	303.23	11.125	282.6	2,500	172	SPR-G2-12.0" 40/80	8.688	220.7	54.75	24.8
	XS	11.75	298.45	11.125	282.6	2,500	172	SPR-G2-12.0" 40/80	8.688	220.7	54.75	24.8
	60	11.626	295.30	11.125	282.6	2,500	172	SPR-G2-12.0" 40/80	8.688	220.7	54.75	24.8
	80	11.374	288.90	11.125	282.6	2,500	172	SPR-G2-12.0" 40/80	8.688	220.7	54.75	24.8
	120	10.75	273.05	10.4	264.16	2,500	172	SPR-G2-12.0" 120	8.264	209.9	50	22.7
14	20	13.376	339.75	12.25	311.2	2,500	172	SPR-G2-14.0" 40/80	10.2	259.1	80.5	36.5
	STD	13.25	336.55	12.25	311.2	2,500	172	SPR-G2-14.0" 40/80	10.2	259.1	80.5	36.5
	40	13.124	333.35	12.25	311.2	2,500	172	SPR-G2-14.0" 40/80	10.2	259.1	80.5	36.5
	XS	13	330.20	12.25	311.2	2,500	172	SPR-G2-14.0" 40/80	10.2	259.1	80.5	36.5
	60	12.812	325.42	12.25	311.2	2,500	172	SPR-G2-14.0" 40/80	10.2	259.1	80.5	36.5
	80	12.5	317.50	12.25	311.2	2,500	172	SPR-14.0" 40/80	10.2	259.1	80.5	36.5
16	10	15.5	393.70	15.375	390.5	2,500	172	SPR-G2-16.0" 10	10.6	269.2	118.5	53.7
	STD	15.25	387.35	14.75	374.7	2,500	172	SPR-G2-16.0" 10/40	9.7	246.4	105.6	47.9
	XS	15	381.00	14.75	374.7	2,500	172	SPR-G2-16.0" 10/40	9.7	246.4	105.6	47.9
18	STD	17.25	438.15	16.5	419.1	2,500	172	SPR-G2-18.0" 10/40	10.14	257.6	128.5	58.3
	30	17.124	434.95	16.5	419.1	2,500	172	SPR-G2-18.0" 10/40	10.14	257.6	128.5	58.3
	XS	17	431.80	16.5	419.1	2,500	172	SPR-G2-18.0" 10/40	10.14	257.6	128.5	58.3
	40	16.876	428.65	16.5	419.1	2,500	172	SPR-G2-18.0" 10/40	10.14	257.6	128.5	58.3
20	10	19.5	495.30	18.438	468.3	2,500	172	SPR-G2-20.0" 10/40	10.2	259.1	150	68.0
	STD	19.25	488.95	18.438	468.3	2,500	172	SPR-G2-20.0" 10/40	10.2	259.1	150	68.0
	XS	19	482.60	18.438	468.3	2,500	172	SPR-G2-20.0" 10/40	10.2	259.1	150	68.0
	40	18.812	477.82	18.438	468.3	2,500	172	SPR-G2-20.0" 10/40	10.2	259.1	150	68.0
24	10	23.5	596.90	22.25	565.2	2,500	172	SPR-G2-24.0" 10/40	10.2	259.1	199.4	90.4
	STD	23.25	590.55	22.25	565.2	2,500	172	SPR-G2-24.0" 10/40	10.2	259.1	199.4	90.4
	XS	23	584.20	22.25	565.2	2,500	172	SPR-G2-24.0" 10/40	10.2	259.1	199.4	90.4
	30	22.876	581.05	22.25	565.2	2,500	172	SPR-G2-24.0" 10/40	10.2	259.1	199.4	90.4
	40	22.625	574.68	22.25	565.2	2,500	172	SPR-G2-24.0" 10/40	10.2	259.1	199.4	90.4
30	10	29.376	746.15	28.375	720.7	2,500	172	SPR-G2-30.0" 10/30	10.2	259.1	300.2	136.1
	STD	29.25	742.95	28.375	720.7	2,500	172	SPR-G2-30.0" 10/30	10.2	259.1	300.2	136.1
	XS	29	736.60	28.375	720.7	2,500	172	SPR-G2-30.0" 10/30	10.2	259.1	300.2	136.1
	30	28.75	730.25	28.375	720.7	2,500	172	SPR-G2-30.0" 10/30	10.2	259.1	300.2	136.1
36	10	35.376	898.55	34.375	873.1	2,500	172	SPR-G2-36.0" 10/30	10.2	259.1	393.4	178.4
	STD	35.25	895.35	34.375	873.1	2,500	172	SPR-G2-36.0" 10/30	10.2	259.1	393.4	178.4
	XS	35	889.00	34.375	873.1	2,500	172	SPR-G2-36.0" 10/30	10.2	259.1	393.4	178.4
	30	34.75	882.65	34.375	873.1	2,500	172	SPR-G2-36.0" 10/30	10.2	259.1	393.4	178.4
42	STD	41.25	1047.75	40	1016.0	2,500	172	SPR-G2-42.0" STD/XS	10.2	259.1	493.75	223.9
	XS	41	1041.40	40	1016.0	2,500	172	SPRG2-42.0" STD/XS	10.2	259.1	493.75	223.9
44	STD			42.476	1078.9	2,500	172	SPR-G2-42.0" STD-XS	10.2	259.1	522	236.7

Pipe Size	Pipe Schedule	Plug O.D. Inch (mm) "A"		length Inch (mm) "B"		Maximum Test Pressure PSI (bar)		Maximum Upstream Pressure PSI (bar)		Tool
0.75	40	0.824	20.93	-	-	2,500	172.37	1,500	103.42	SPR-0.750" 40
	80	0.742	18.85	-	-	2,500	172.37	1,500	103.42	SPR-0.750" 80
1.00	40	1.049	26.64	-	-	2,500	172.37	1,500	103.42	SPR-1.0" 40
	80	0.957	24.31	-	-	2,500	172.37	1,500	103.42	SPR-1.0" 80
	160	0.815	20.70	-	-	2,500	172.37	1,500	103.42	SPR-1.0" 160
	XXS	0.599	15.21	-	-	2,500	172.37	1,500	103.42	SPR-1.0" XXS
1.50	40	1.610	40.89	-	-	2,250	155.13	1,500	103.42	SPR-1.5" 40
	80	1.500	37.10	-	-	2,250	155.13	1,500	103.42	SPR-1.5" 80
	160	1.338	33.99	-	-	2,250	155.13	1,500	103.42	SPR-1.5" 160
	XXS	1.100	27.94	-	-	2,250	155.13	1,500	103.42	SPR-1.5" XXS
2.00	160	-	-	-	-	2,250	155.13	1,500	103.42	SPR-2.0" 160
2.00	40	1.962	49.83	7.750	196.85	2,000	137.90	1,500	103.42	SPR-2.0" 40
	80	1.844	46.84	7.750	196.85	2,250	155.13	1,500	103.42	SPR-2.0" 80
3.00	40	2.775	70.49	8.125	206.38	2,250	155.13	1,500	103.42	SPR-3" 40/80
	80	2.775	70.49	8.125	206.38	2,250	155.13	1,500	103.42	SPR-3" 40/80
	160	2.175	55.25	7.750	196.85	3,375	232.70	1,500	103.42	SPR-3" 160
	XXS	2.175	55.25	7.750	196.85	3,375	232.70	1,500	103.42	SPR-3" XXS
4.00	40HP	3.863	98.12	8.750	222.25	2,250	155.13	1,500	103.42	SPR-4.0" HP
	40/80	3.626	92.10	8.750	222.25	2,250	155.13	1,500	103.42	SPR-4.0" 40/80
	XXS	3.027	70.89	10.000	254.00	3,375	232.70	1,500	103.42	SPR-4.0" XXS
6.00	40/80	5.563	141.30	10.875	276.23	2,000	137.90	1,500	103.42	SPR-6.0" 40/80
	XXS	4.697	119.30	10.875	276.23	3,375	232.70	1,500	103.42	SPR-6.0" XXS
8.00	40/80	7.438	188.93	11.750	298.45	1,150	79.29	1,500	103.42	SPR-8.0" 40/80
	XXS	6.625	168.25	11.750	298.45	2,250	155.13	1,500	103.42	SPR-8.0" XXS
10.00	40/80	9.375	258.13	11.500	292.10	1,150	79.29	1,500	103.42	SPR-10.0" 40/80
12.00	40/80	11.125	282.58	12.250	311.15	1,150	79.29	1,500	103.42	SPR-12.0" 40/80
14.00	40/80	12.250	311.15	13.750	349.25	1,150	79.29	1,500	103.42	SPR-14.0" 40/80
16.00	40/80	14.000	355.60	15.625	396.88	1,150	79.29	1,500	103.42	SPR-16.0" 40/80

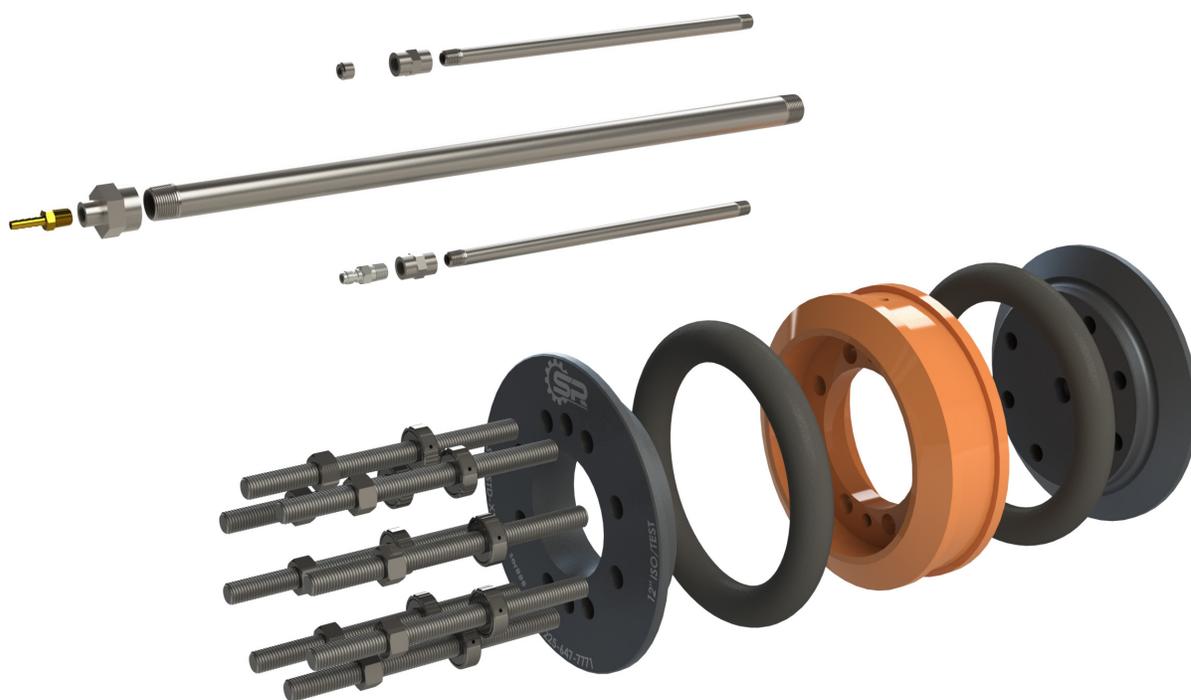


While working pressure is 2500 PSI, pressures listed above are not necessarily limits of the tool; they may be limited by the pipe or flange rating. Contact Superior for additional information on higher pressure or different size applications.



## TOOL OPERATION

1. Inspect all parts of the SPR weld test isolation vapor barrier tool for proper condition. Be sure to check the following:
  - Vent / fill ports for obstruction
  - Rubber seals for defects
  - Replace damaged parts before each use (See WIT Plug Maintenance on pages 16 – 22)
2. Verify that the condition of the inside of the pipe where the seals of the tool will sit are clean and free of process debris.



**NOTE - Each tool must be fully maintained and functional prior to each installation.**

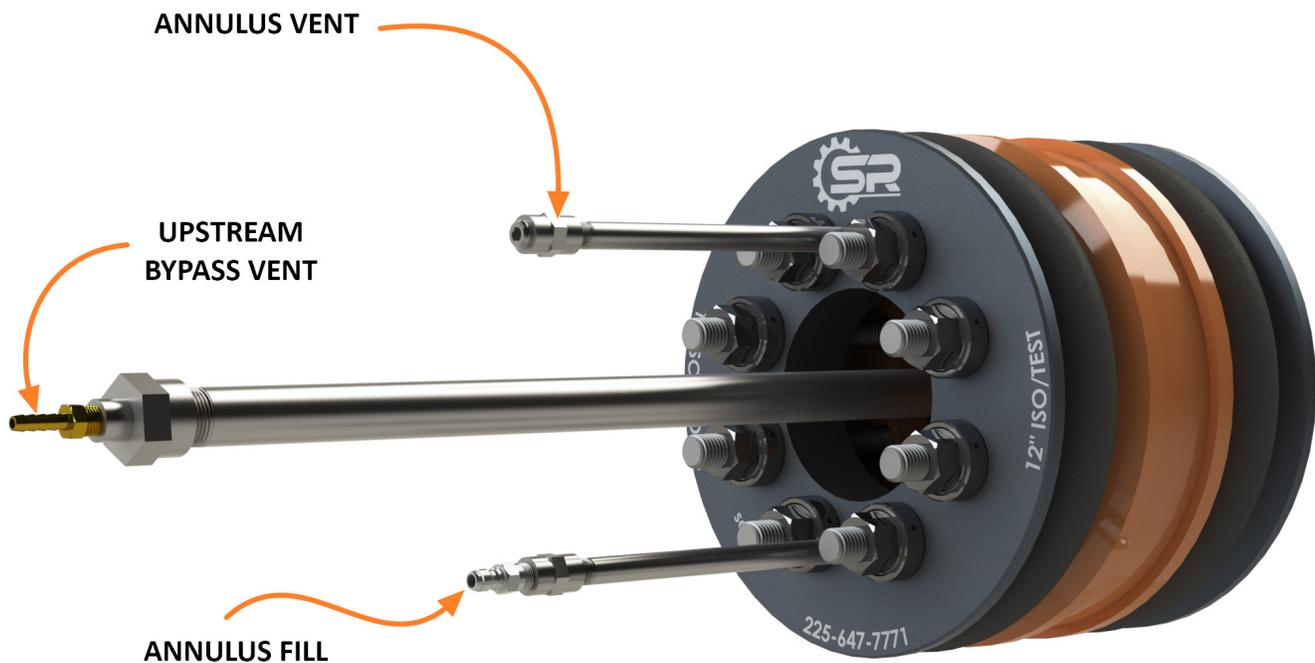
3. Verify that the pipe size and pipe schedule stamped on the plug are equivalent to the pipe size in which the plug will be installed.



**NOTE - Some SPR tools are multi-scheduled. This is indicated on the tooling stamp. If the tool is stamped 8" SCH 40-80 then this tool will perform in 8" Schedule 40 and in 8" schedule 80 pipe.**

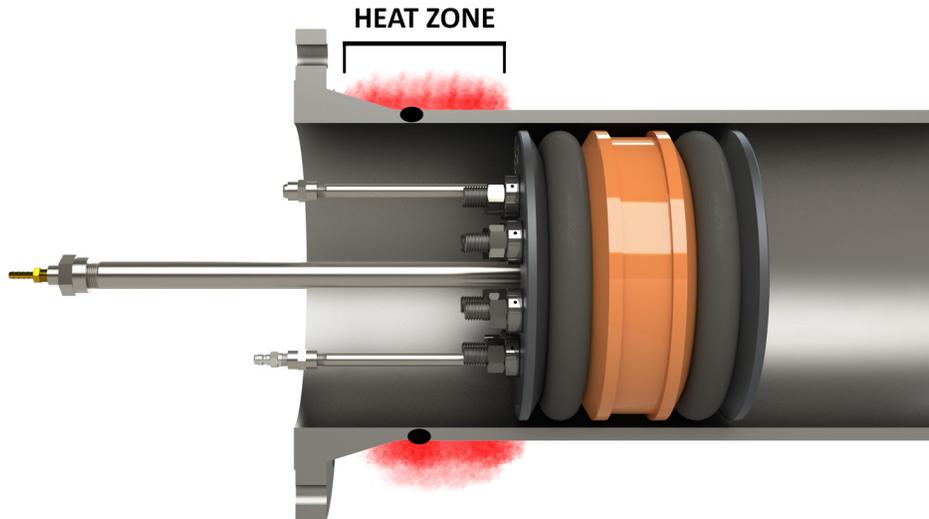


4. Attach piping / hoses to the Annulus Fill, Annulus Vent, and Upstream bypass port on the plug.



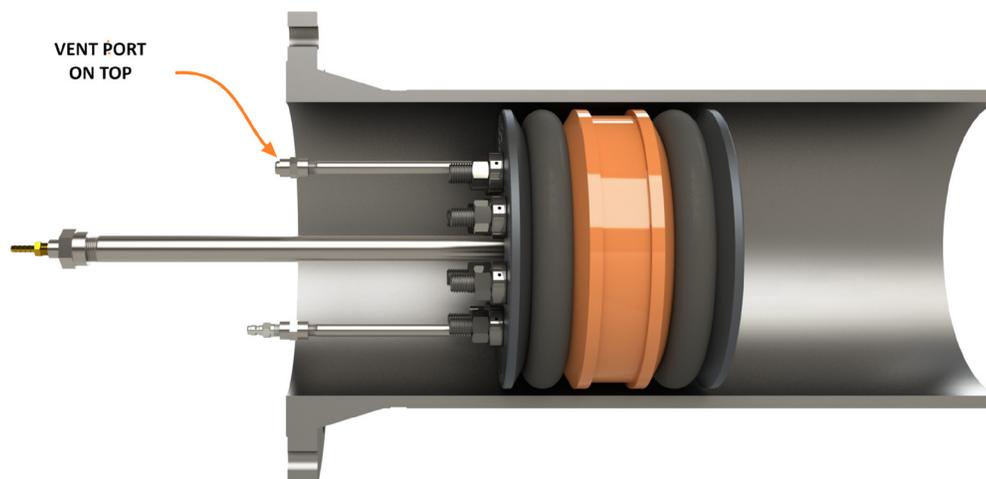
**NOTE -** Upstream vapors may be vented by attaching a hose to the bypass port and locating the open end of the hose down-wind from the hot work area.

5. Insert the Isolation test tool as far as necessary into the pipe to prevent damaging the seals due to heat generated by the welding/heat treating procedure.

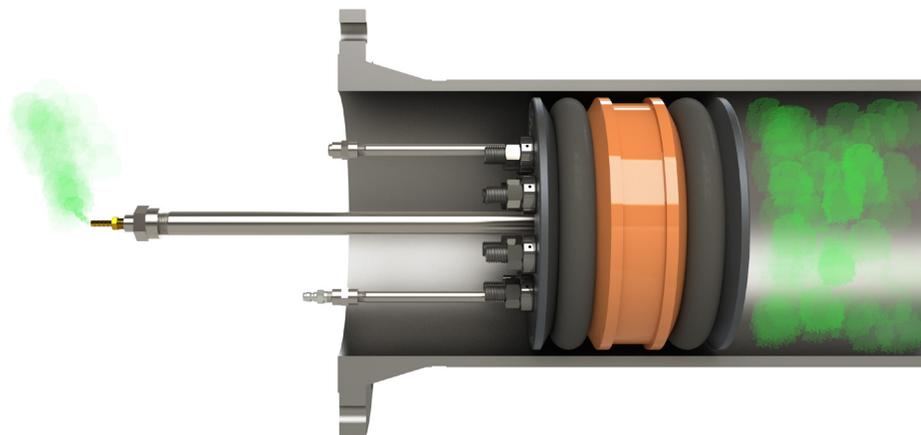


**NOTE** - The maximum temperature for seals is 250 °F using urethane and 400 °F using Buna and Viton. It may be necessary to monitor pipe temperatures during hot work to ensure seals are not damaged. A temperature monitor can be attached to the pipe in the area of the plug seal prior to heating. An on-site plan should be established to set the minimum warning temperature.

6. Position the tool such that the vent port is towards the top. Always make sure that the bypass port is open and vented.

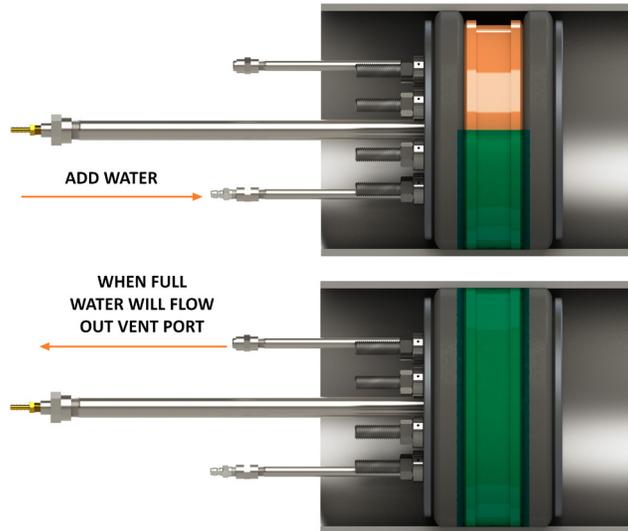


7. Actuate the seals by tightening the nut / nuts on the tool in a crisscross pattern (if the tool has multiple studs)  $\frac{1}{2}$  to 1 turn at a time. Ensure that the tool is tightened evenly to ensure that the seal is compressed evenly and square. Repeat crisscross tightening the pattern until the seals have compressed evenly into the pipe. Each tool will require a different tightening force to achieve the proper seal depending on the pipe schedule and size.



**NOTE -** Once the seals have compressed into the pipe the upstream vapors will then start to flow out of the bypass port of the plug and should be monitored 100% of the time the plug is in the line.

- Begin pumping water in through the annulus fill port of the tool. Close the annulus vent as soon as water begins flowing out of the annulus vent port. Pressurize the center annulus to pressure and close the annulus fill port valve to maintain the annulus pressure.



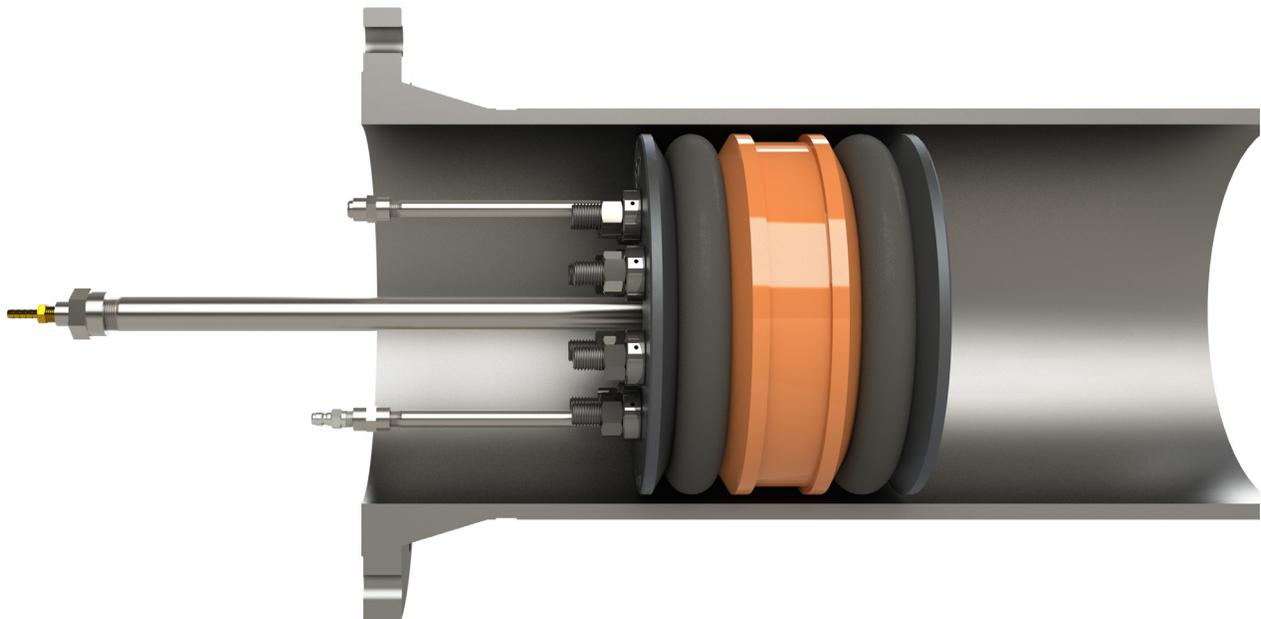
**NOTE - Pressuring the annulus is a positive way to ensure the seals are properly engaged into the pipes inner wall.**



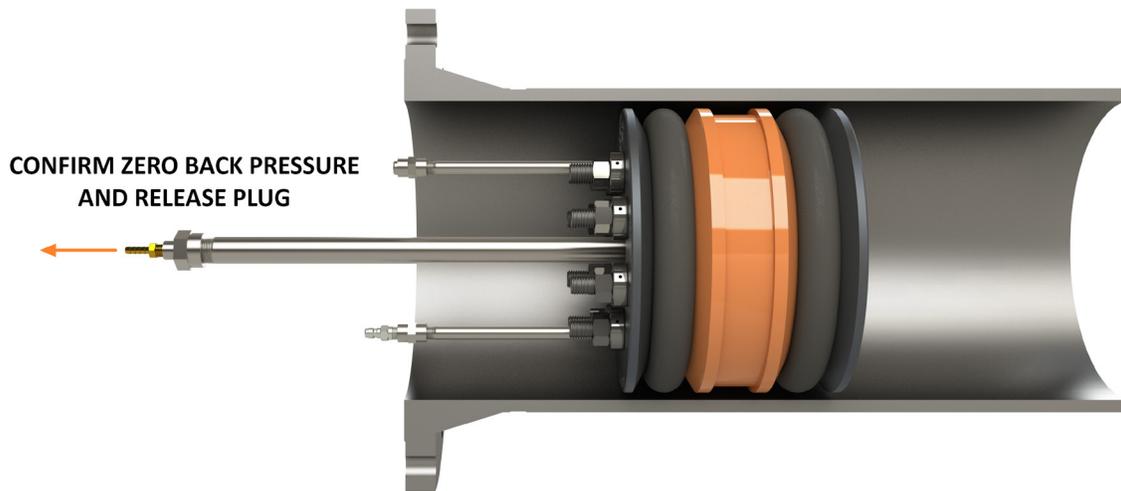
9. Monitor the annulus fill port pressure gauge to ensure that no leakage has occurred.
10. After the work on pipe is completed and it is time to remove the isolation plug, verify there is no upstream pressure. Release all pressure from the annulus of the plug.



**CAUTION** - When removing a plug, make sure **NO** upstream pressure is present. On plugs 6" and greater, the use of the locking lugs is the preferred method for removal.



- Loosen the hex nut / nuts on the plug in a cross pattern until the seals are back in a neutral state. If the locking set screws were in use, you can now Release the torque from them. Remove plug from the ID of the pipe.

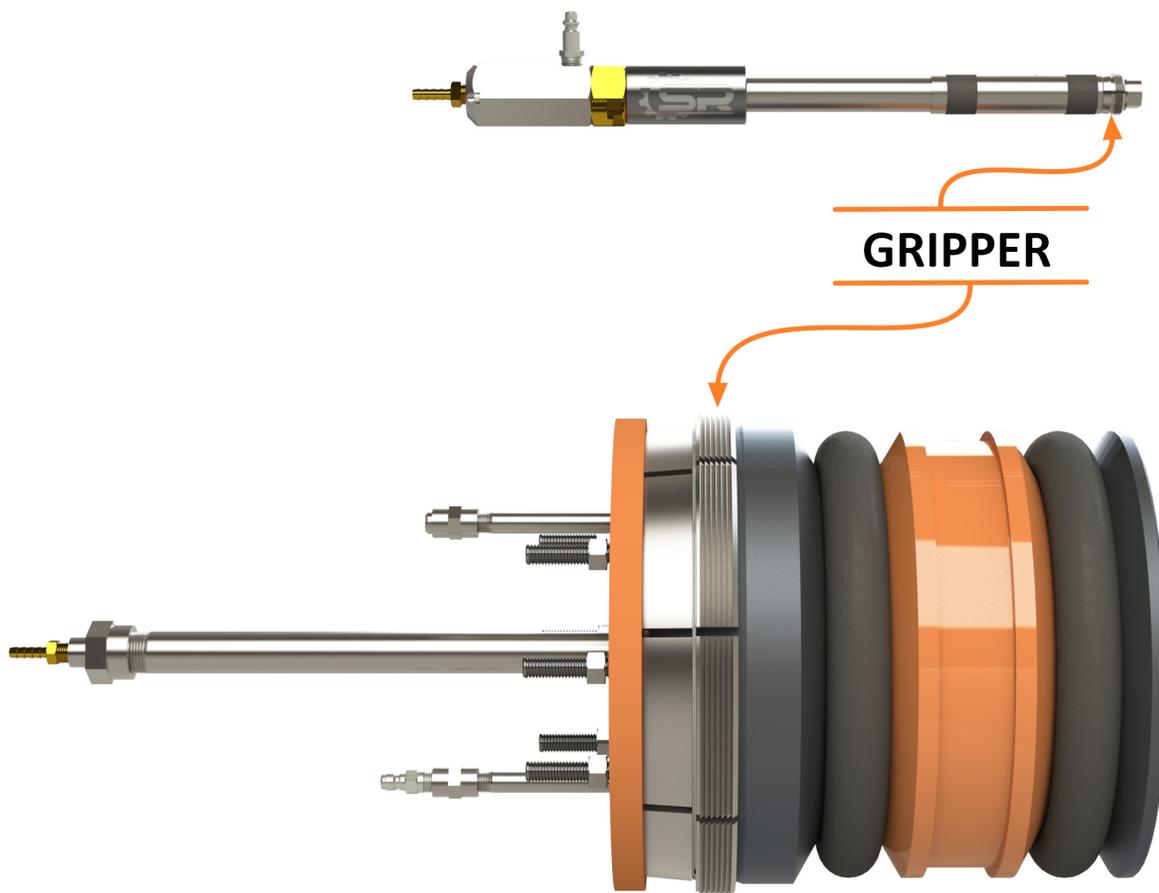


## ISOLATION WITH GRIP TYPE PLUG

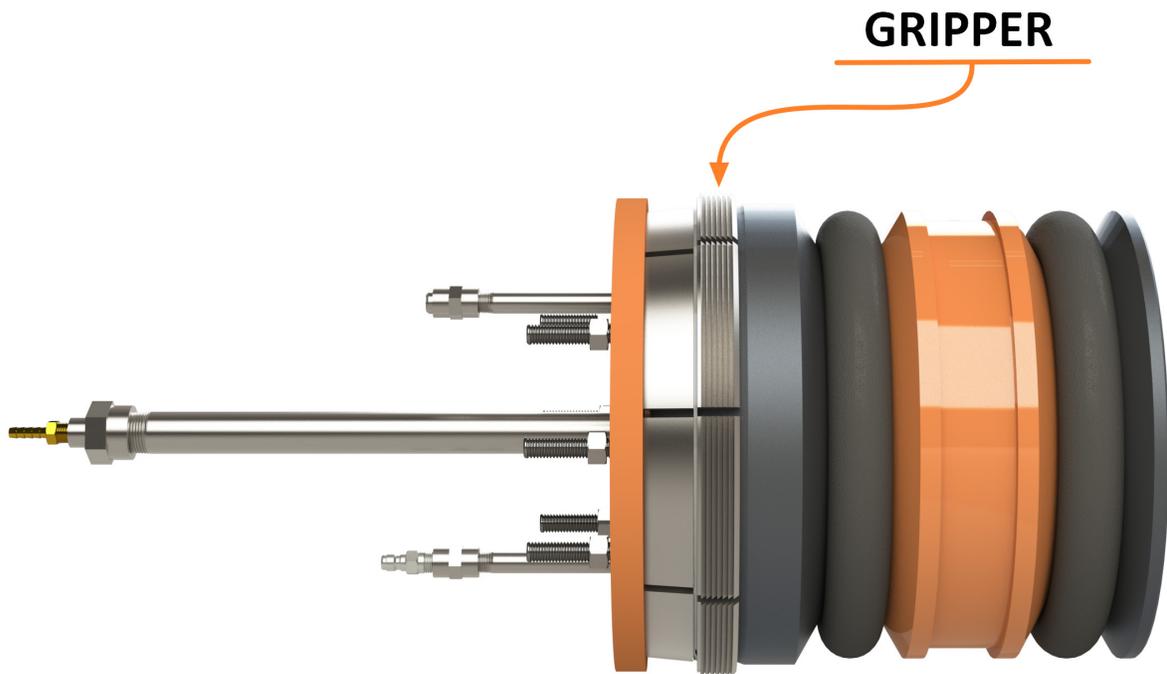
- The Superior GTDBB plugs function the same as the standard Isolation plug with added safety grippers on the tool that give the plug a stronger upstream rating, in most cases as much as 1500PSI.



2. Plug sizes  $\frac{3}{4}$ " to 4" Engagement of the gripper jaws will be accomplished at the same time as the seal engagement process, tools that engage the jaws with the same nut/nuts as the seals will require no more than 200-inch lbs. to properly seat the jaws and engage the seals for isolation purposes.



- On sizes 6" and larger the Engagement of the gripper jaws will be accomplished as an independent function from the seal engagement. Gripper jaws will require that you now tighten the Gripper Actuating nuts on the pusher plate of the tool. Tightening of the nuts for the gripper jaws should be performed in a Criss cross manner to ensure that the pusher plate is engaging the jaws correctly. No more than 180-inch lbs. Is required to properly engage the locking jaws. Each tool will be engraved with torque values for jaw engagement. Extreme caution should always be used to ensure that the tool is engaged properly and that no back pressure is present.

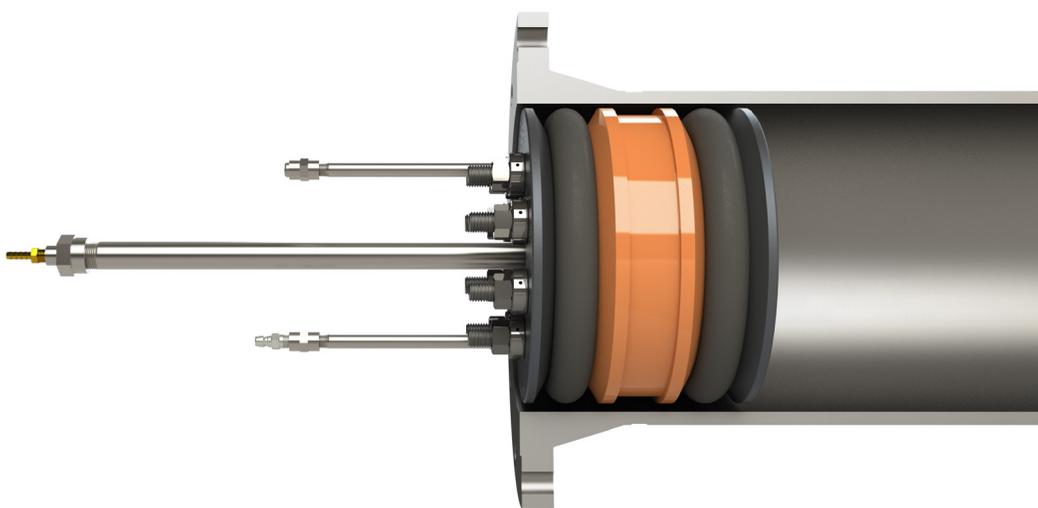


**NOTE - Pressuring the annulus is a positive way to ensure the seals are properly engaged into the pipes inner wall. When using a GTDBB plug this pressure should be equal to or above the potential upstream pressure of the piping system.**

## HYDROSTATIC TESTING

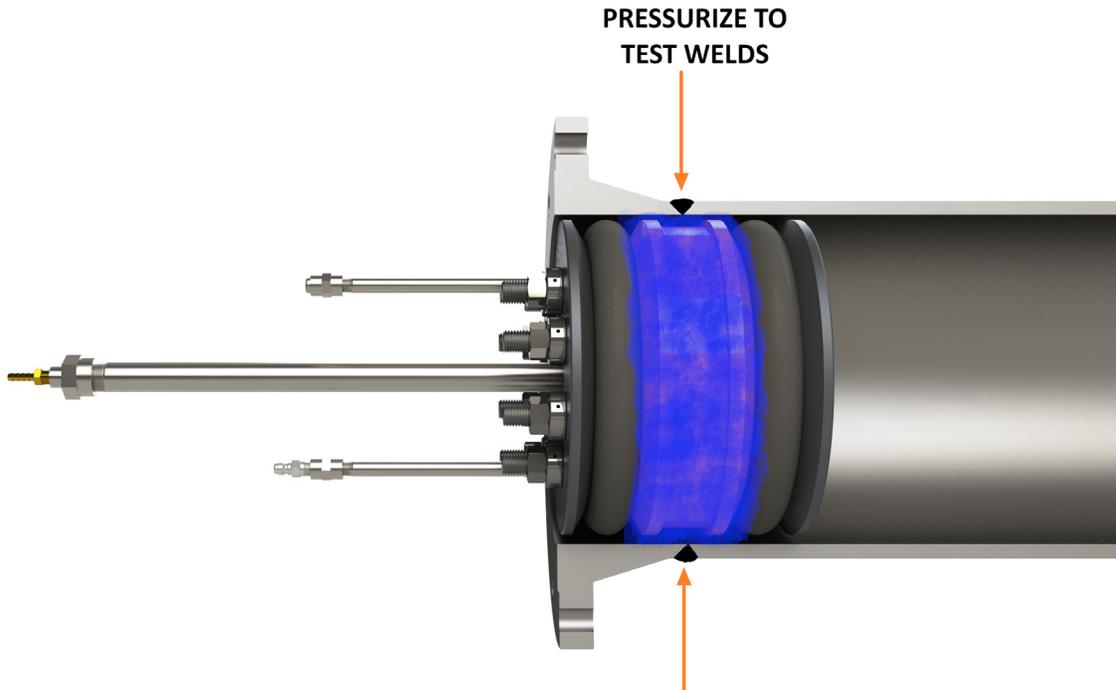
When using a plug to perform a hydrostatic test, it is important to note that the plug is designed to have pressure placed between the seals on the Annulus and **NOT** to the upstream side of the plug. The plug will function the same as when using as an isolation plug. All ports, vents and fasteners will remain the same.

1. Position the plug so that the seals straddle the weld to be tested.



2. Remove the air from the annulus of the plug by way of high point vent or apply slight amount of seal torque to ensure the seals will leak; this will force the air to be push out passed the seals.
3. Once you are sure all the air has been exhausted out of the system, depressurize the system to zero.
4. Actuate the seals by tightening the nut/nuts on the tool in a crisscross pattern (if the tool has multiple studs)  $\frac{1}{2}$  to 1 turn at a time. Ensure that the tool is tightened evenly to ensure that the seal is compressed evenly and square. Repeat crisscross tightening the pattern until the seals have compressed evenly into the pipe. Each tool will require a different tightening force to achieve the proper seal, dependent on the pipe schedule and size.

5. Begin pumping water in through the annulus fill port of the tool. Close the annulus vent as soon as water begins flowing out of the annulus vent port. Pumping will continue until the test pressure has been achieved.
6. Pressurize the center annulus to the desired test pressure and close the annulus fill port valve to maintain the annulus test pressure.



**NOTE - At high pressure the seals and hoses could have some settling. If this occurs let the test sit for 5 mins for all rubber components to equalize to the pressure applied to the system. Repumping of the system may be required.**

7. After testing is complete all pressure must be released for the plug check that the testing gauge is at zero and pump has been removed from the testing system.
8. Loosen the hex nut / nuts on the plug and remove the plug from the pipe.

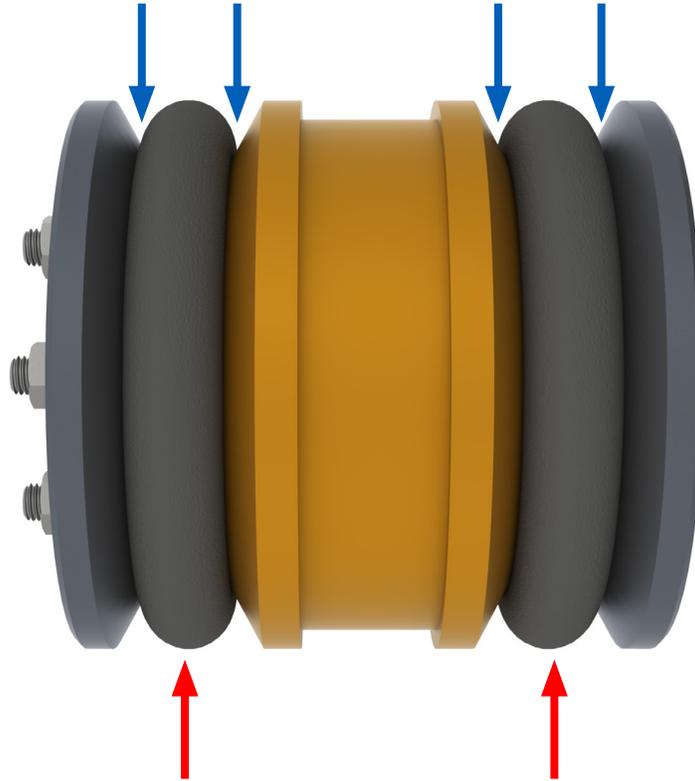
## MAINTENANCE

1. Establish a standardized guideline for Double Block & Bleed preventive maintenance. As a minimum, there should be a standard protocol with regards to the return service used tools and the make ready process for reissuance.
  2. Initiate received acknowledgment by documenting on specified colored tag date returned and job ticket originally issued against. Initiate service report to document any abnormal conditions or concerns.
  3. Perform visual inspection and complete inventory to verify all issued items were returned. Document all damages and or missing items and notify responsible branch designee in writing.
  4. All equipment repairs should be completed by trained and competent personnel.
  5. If any parts are damaged or defective, they must be replaced before the equipment can be put back in service and used again.
  6. If parts are not readily available and must be ordered, the equipment will be tagged with a **RED** "Do Not Use" tag and placed in designated red tag area. The equipment can be used again after it is fixed, and the parts have been replaced. *When ordering replacement parts, either original parts from the manufacture or "like in kind" parts must be approved by a shop supervisor for use.*
  7. When a part(s) needs to be replaced on equipment, it must be written down and documented on an equipment Replacement / Repair Form and placed in the equipment folder for future reference.
- 

**NOTE - All scheduled maintenance shall be documented and placed in the equipment folder. Routine inspection / cleaning will occur every time the tool is returned after a rental. When equipment is inspected or repaired for normal rental service and has been fully serviced, this can be considered Scheduled Maintenance**
8. Wearing gloves and eye protection place WIT tool in liquid spill container or tray. Using appropriate size wrench, release any loading of compression bolt(s) and separate seals to drain any potentially trapped chemical residue. Turn onto side if necessary to ensure all residue has drained from tool into tray.
  9. Disassemble tool completely and separate the hard parts from soft parts for cleaning. Use of solvents on soft parts is discouraged; the seals should be cleaned with industrial grade detergent while solvent cleaning of hard parts is acceptable.
  10. Inspect all NPT threaded connections to verify a leak tight threaded connection.
  11. Inspect Seals closely to ensure that no cracking or defects have occurred in the seal. If defects are noted in the seal, replace immediately.
- 

**NOTE - See Imagery A-D on page 20 for seal reference.**

12. Apply light grease (Preferably super lube) on to the rubber seals where it meets the tool Annulus, Top plate, and Bottom base plate Bevels.



**NOTE - Take care to NOT put the Grease / Lube on the outside of the seals. This could cause tool slippage on the inside of the pipe.**

13. Check and clean the fill vent and through ports by screwing in and out an NPT tap of the correct size.
14. Spray WD-40 or equivalent penetrating oil into the test fill / vent ports and blowout with compressed air. Repeat several times to make sure corrosion does not occur within the passage.
15. Inspect the thrust bearing to ensure they move freely, clean with WD-40 and repack them with bearing grease. If there is a hardened washer, inspect for burs replace washers or bearings if they do not move freely.

16. Apply grease onto the hex nut, hardened washer, and the threaded rod.
17. Check to ensure the nut will run freely 2" up and down the threaded rod. If it does not, replace the nut and the threaded rod.
18. On plugs that come equipped with restraint and centering screws, inspect restraint set screw and centering set screw tips to verify they are not worn or rusted. Replace defective set screws.
19. Reassemble all parts of the tool in the reverse order of disassembly.
20. Secure assembly by installing and hand tightening all compression nuts onto tool.
21. Attach service ready green tag and complete documentation of maintenance performed on service report.



**NOTE - Always document all maintenance performed on WIT equipment by Completing service reports, missing items reports, and / or red tag report and notify branch of any unusual observations, abnormal conditions, or issues of concerns.**

## RECORDS AND APPROVALS

Equipment SN #: \_\_\_\_\_

Equipment Location:

Job Ticket #: \_\_\_\_\_

Mechanic: \_\_\_\_\_

Date: \_\_\_\_\_

Revision History



Imagery A  
Seal with cracks



Imagery B  
Deformation

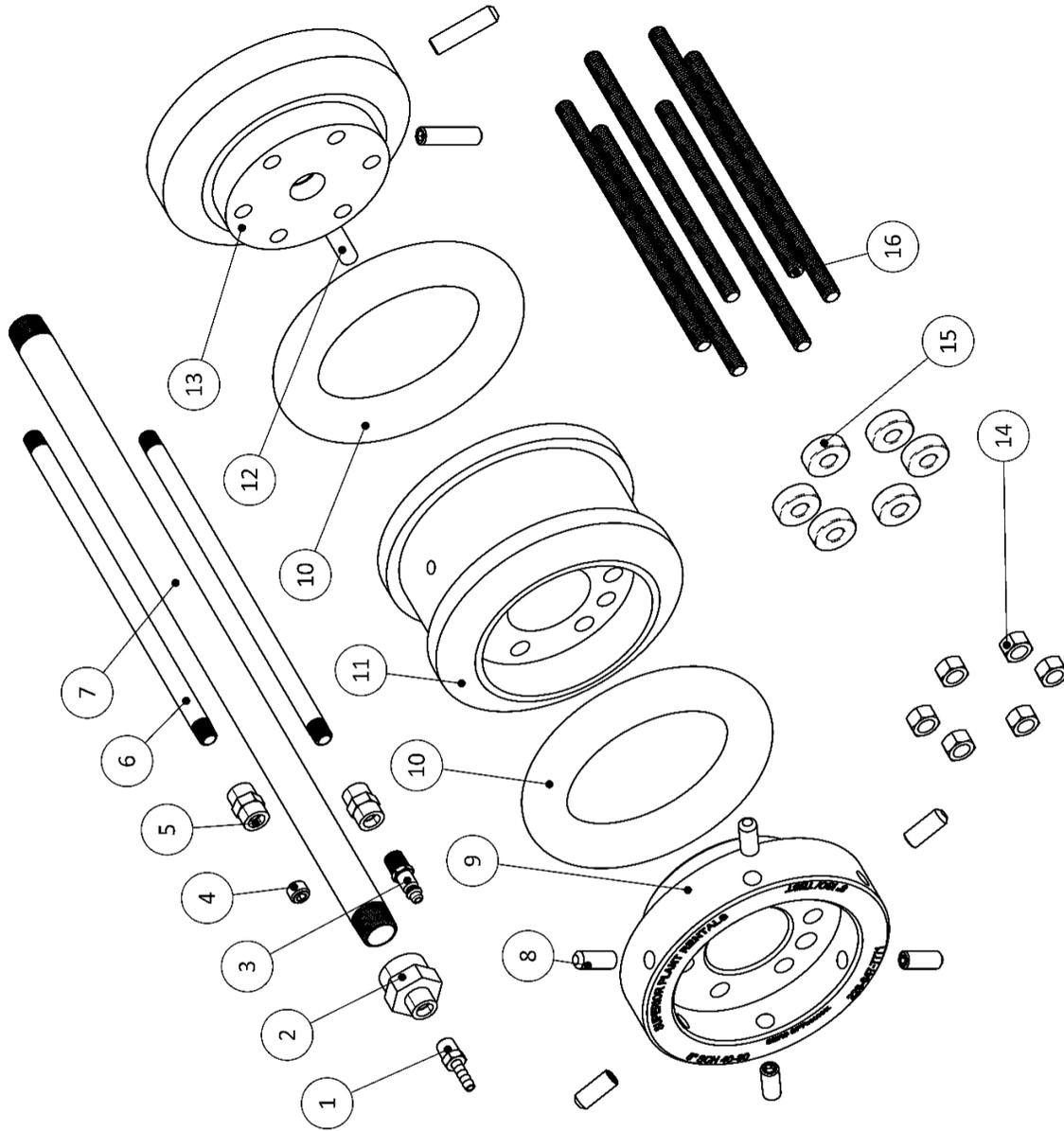


Imagery C  
Seal Crush



Imagery D  
Seal Flattening

# STANDARD EQUIPMENT



No.	PartNo	SprDesc	Qty.
1	14907	FITTING .25 BARB .25NPT	1
2	15041	FITTING REDUCER .75FNPT-.25FNPT	1
3	14911	FITTING .25 QD .25 NPT	1
4	15039	FITTING PLUG .25NPT	1
5	15038	FITTING COUPLER .25FNPT	2
6	15037	PIPE NIPPLE .25X1.2IN	2
7	15042	PIPE NIPPLE .75X2.4IN	1
8	14958	SSSCP .5-13 X 1.25 BO	6
9	13077	TOP PLATE 8IN SCH 40-80	1
10	15019	SEAL 8IN SCH 40-80	2
11	13078	CENTER ANNULUS 8IN SCH 40-80	1
12	14957	SSSCP .5-13 X 2 BO	3
13	13079	BOTTOM PLATE 8IN SCH 40-80	1
14	14043	NUT HEX .5-13	6
15	15002	BEARING THR .5X1.266X.438IN	6
16	15004	STUD .5-13X9.5IN B7 BLUE PTFE	6

## WARRANTY

Superior Plant Rentals, LLC (SPR) warrants that the equipment manufactured by it will: (i) conform to SPR's written specifications and descriptions, and (ii) be free from substantial defects in design, materials, and workmanship for a period of one year from date of shipment to the original buyer, or six months from date of placing in service by buyer, whichever date is earlier.

During this period, if any equipment is proved to SPR's satisfaction to be defective, SPR will, at our sole and absolute discretion, and as SPR's sole warranty liability and buyer's sole remedy, repair, replace, or credit buyer's account for any equipment that fails to conform to the warranties, provided that: (i) SPR is notified in writing within 10 days following discovery of such failure with a detailed explanation of any alleged deficiencies; (ii) SPR is given a reasonable opportunity to investigate all claims; and (iii) SPR's examination of such equipment confirms the alleged deficiencies and that the deficiencies were not caused by accident, misuse, neglect, improper use, unauthorized alteration, repair, or improper testing.

Shipping cost of the alleged defective equipment to SPR is to buyer's account. However, if SPR agrees that the equipment is defective, then pursuant to this warranty, SPR will reimburse buyer its shipping cost to return the equipment to SPR.

The warranty against defects does not apply to: (1) consumable components or ordinary wear items, and (2) use of the equipment with equipment, components, or parts not specified or supplied by SPR or contemplated under the equipment documentation.

The following actions will void the one-year warranty:

1. Repairs or attempted repairs have been made by persons other than SPR personnel, or authorized service repair personnel;
2. Repairs are required because of normal wear;
3. The tool has been abused or involved in an accident;
4. There is evidence of misuse, such as overloading of the tool beyond its rated capacity, use after partial failure, or use with improper accessories.
5. Damage to the motor due to lack of oiler/mister while tool was in use (pending motor type).

### **NO OTHER WARRANTY IS VALID**



**SUPERIOR**

Beaumont, TX | Campbell River, BC | Corpus Christi, TX  
Edmonton, AB | Gonzales, LA | Houston, TX | Moss Point, MS  
Rancho Dominguez, CA | Rock Hill, SC | Webster, TX