Model GL Sliding Sleeve

Assembly & Testing Technical Information

Part Number: (Various)

Description

The GL Sliding Sleeve is a communication device with a ported inner sleeve that can be opened or closed using a shifting tool by standard slickline or coiled tubing methods. The Sliding Sleeve is made up to and forms part of the tubing string. The GL Sliding Sleeve is a shift-up-to-open tool.

The GL Sliding Sleeve is used to establish a means of communication between the tubing string and the casing annulus for single-tubing or multiple-tubing string completions. The GL Sliding Sleeve may be used for directing flow from the casing to the tubing in alternate or selective completions. Other applications include killing a well, spot acidizing and fracturing, or equalizing pressure between an isolated formation and the tubing string.

Features and Benefits

- Closing Sleeve Upper seals are designed to accommodate elastomer swell, to prevent pressure trapping, and to require only a moderate and consistent shifting force.
- Lower seals have all the above features, and in addition are integrally mold-bonded to the Closing Sleeve. This, plus their dynamically determined shape, permits the "GL" Sliding Sleeve to be opened against severe differential from either the casing or tubing side without seal damage.
- Collet Lock on Closing Sleeve - Provides a uniform shifting force requirement. Immune to solids.
- Closing Sleeve Skirt - Provides insurance against being blown up the hole during an opening operation. This is accomplished by placing the flow path above the engaging members of any shifting tool.
- Seal Bores - Contoured and polished to pass Chevron Packing without damage.
- Recourse - If, for some reason, the Closing Sleeve cannot be closed, the ports can still be blanked off with an appropriate Accessory.
- GF Top No-Go Nipple Profile to land slickline tools.

Technical Numbers and Accessory Info

- **Maximum OD:** See chart below.
- **Minimum ID:** Seal Bores.
- **Opening Direction:** UP
- **Drift Diameter:** 0.0010” to 0.0015” smaller than seal bore Minimum ID.
- **Shifting Tools:** Baker “D-2”
- **Separation Sleeve:** GLWE or GLSE
- **Blanking Plug:** GFWG or GFSG
- **Standing Valve:** GFB-2

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Testing

All GL Sliding Sleeves are pressure tested to 6,000 psi using internal seal bore seals that pressure test both the seal stacks and the seal bores.

As previously noted, GL Sliding Sleeves are shifted with Baker type “D-2” shifting tools.

1. After fully assembling the sliding sleeve, tighten it in a vise horizontally and shift the sliding sleeve closed-open-closed, verifying that the sliding sleeve is fully closed and open each time.
2. Insert the test plugs into either end of the sliding sleeve; you will feel the seals grab the seal bores, confirming location.
3. Fill the Sliding Sleeve with water or hydraulic fluid and apply pressure up to 500 psi.
4. Apply pressure in 1,000 psi increments, pausing every 1,000 psi for 5 seconds; up to 6,000 psi.
5. Hold at 6,000 psi for 10 minutes, ensure there are no leaks and drop in pressure, engrave the sliding sleeve with a pressure test serial number and mark the pressure test chart with the same serial number.
6. Bleed off pressure, tighten sliding sleeve body connections, wipe down and store.

Operating

It is preferred that different seal bore sized GL Sliding Sleeves be used in the same tubing string, with the largest ID (Seal Bores,) at the top and the smallest ID at the bottom (see example below,) this allows easy passage and installation of slickline tools. Multiple GL Sliding Sleeves with the same size ID (Seal Bores,) can also be used in the same tubing string if desired.

Example

- 2.812” GL Sliding Sleeve (TOP)
- 2.750” GL Sliding Sleeve
- 2.562” GL Sliding Sleeve
- 2.312” GL Sliding Sleeve
- 1.875” GL Sliding Sleeve (BOTTOM)

Opening a GL Sliding Sleeve

Attach the correct size Model “D-2” Shifting Tool to a standard wireline tool string and run into the well. Reduce running speed as the shifting tool approaches the sliding sleeve and the Shifting Tool Collet makes contact with the No-Go shoulder in the upper seal bore of the sliding sleeve. Gently set down the full weight of the wireline tool string to release and engage the D-2 Shifting Tool dogs with the lower end of the closing sleeve. Apply an upward pull on the wireline to verify that the shifting dogs are engaged. Jar up to shift the sliding sleeve open. The shifting dogs will automatically

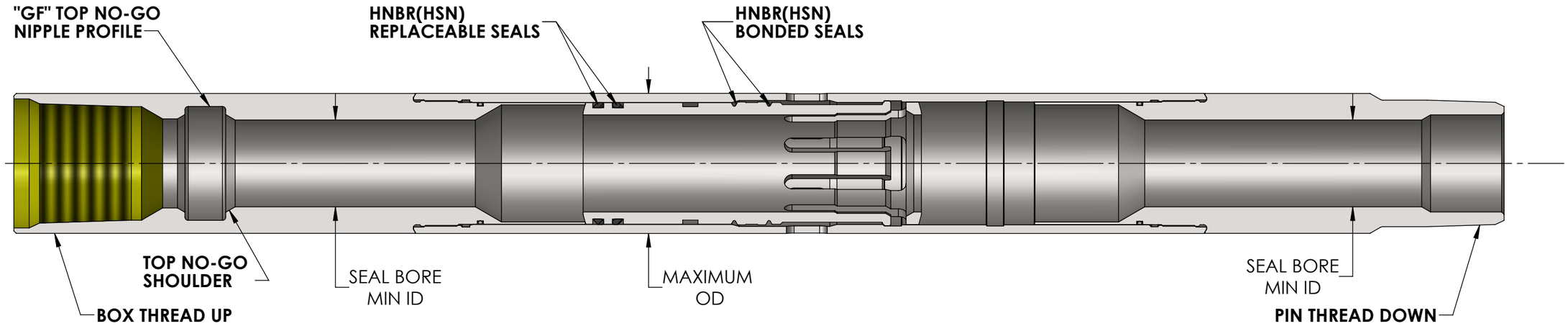
release when the closing sleeve is in the full open position. Verify that the closing sleeve has opened by repeating the opening operation.

Closing a GL Sliding Sleeve

When being run to close a sliding sleeve, the fishing neck and the thread protector must be reversed and the tool run in the inverted position (collet on lower end of tool and dogs facing down). Attach to standard wireline tool string and run in the well. Reduce running speed as tool approaches sliding sleeve. When collet contacts the upper seal bore of the sleeve jar down to drive collet through the seal bore. Repeat for lower seal bore of sleeve. Pick up slowly until the collet contacts the bottom of the seal bore in the lower sub of the sliding sleeve. Take a moderate pull on the wireline to engage the shifting dogs with the top of the closing sleeve. Verify engagement of the dogs by setting down on wireline tool string. Jar down to shift the closing sleeve closed. The shifting dogs will automatically release when closing sleeve reaches the full closed position. Verify by repeating the closing operation. Lower the shifting tool several feet below the sleeve and pick up rapidly to drive the collet into the lower seal bore. Jar up only to move the collet completely through both seal bores.

Giant Oil Tools Ltd., Model GL Sliding Sleeve										
*Seal Bore ID		Flow Area (Ports)		Flow Area (Min ID)		Max OD		Thread Box x Pin	Shifting Tool	Burst & Collapse (psi)
in.	mm.	Sq in.	Sq cm.	Sq in.	Sq cm.	in.	mm.			
1.781	45.24	2.839	18.32	2.490	16.06	2.910	73.91	2-3/8" EUE	1.781 "D-2"	Burst = 9,230 Collapse = 9520
1.812	46.02			2.577	16.63				1.812 "D-2"	
1.875	47.63			2.762	17.82				1.875 "D-2"	
2.250	57.15	4.132	26.66	3.974	25.64	3.410	86.61	2-7/8" EUE	2.250 "D-2"	Burst = 9,910 Collapse = 10,470
2.312	58.72			4.199	27.09				2.312 "D-2"	
2.562	65.07	6.105	39.39	5.152	33.24	4.500	114.30	3-1/2" EUE	2.562 "B"	Burst = 9,520 Collapse = 10,040
2.750	69.85			5.940	38.32				2.750 "D-2"	
2.812	71.42			6.207	40.07				2.812 "D-2"	
3.688	93.68	10.706	69.07	10.677	55.55	5.500	139.70	4-1/2" EUE	3.688 "D-2"	Burst = 7,900 Collapse = 7,200
3.750	95.25			11.039	71.22				3.750 "D-2"	
3.812	96.82			11.407	73.63				3.812 "D-2"	

*Seal Bore ID is also the Minimum ID of the Sliding Sleeve.



MATERIAL –	UNLESS OTHERWISE SPECIFIED TOLERANCES .X = ± 0.030 .XX = ± 0.015 .XXX = ± 0.005 FRACTIONS = ± 1/64 ANGLES = ± 1/2° INSIDE CORNERS 0.015 R. MAX. ALL THREAD ENTRY AND EXIT ANGLES TO BE 45° OFF AXIS OF THREAD REMOVE ALL BURRS AND SHARP CORNERS ALL THREADS–RIGHT HAND	SURFACE FINISH 125	GIANT OIL TOOLS	GIANT OIL TOOLS	DRAWN – / DATE –
HEAT TREATMENT					APPROVED – / DATE –
COATING –			DWG NO.	—	
UPPER END ← LOWER END → (ID) = IDENTIFICATION	UNITS INCHES		DESCRIPTION	GL SLIDING SLEEVE	
			PROJECT	–	
			SCALE –	SHT. 1 OF 1	PART REV. — / DWG REV. — / MASS – LB

Surface Area = 1026.02 sq. in.

DO NOT SCALE DRAWING