FET | Davis-Lynch

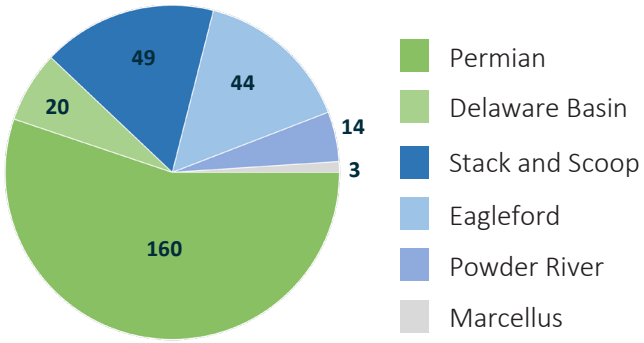
CleanBore™ Buoyancy Sub

Running casing to depth is challenging in long lateral sections because of the excessive drag forces. To improve casing running capabilities, the CleanBore™ Buoyancy Sub is placed in the heel to trap an atmospheric chamber in the horizontal section of the casing, significantly reducing drag force. Hook load is concentrated in the vertical section, allowing the operator to land strings in ultra-long laterals. With the casing on the bottom, applied pressure activates the CleanBore™ Buoyancy Sub and leaves a fullbore ID for cementing and completion operations.

The CleanBore™ Buoyancy Sub product line utilizes proprietary glass machining and tempering specifications. The result is a high-strength glass that can withstand shocks during handling and well operations, while ensuring complete disintegration upon activation to leave a fullbore tubing ID.

The high-strength proprietary glass shatters into tiny, sand-like fragments can be pumped through float equipment without any risk of plugging.

Track Record by Basin



CleanBore™ Buoyancy Sub Advantages

- **High Pressure** - Strongest single-layer glass, rated over 15,000 psi
- **High Torque** - Designed to the torque ratings of all commonly used casing connections.
- **Precise Activation** - Aerospace technology to provide activation pressure accuracy of +/- 5%
- **Casing & Liner Compatibility** - Designed with the largest running clearances allowing a combination of casing strings to be run. Compatible with all cement wiper plug configurations.
- **Single Glass Disk** - Less volume of glass to pump through float equipment.
- **No Debris** - Shatter Glass technology completely disintegrates and eliminates need for debris trap
- **Truly Fullbore** - Smooth bore after activation and drift larger than the casing.
- **Perfect Track Record** - 290+ runs with 100% success.

Size and ppf	Mat. Yield[1] [ksi]	Max Sheer dP[2] [kpsi]	ID [in]	OD [in]	Burst[3] [kpsi]	Collapse[3] [kpsi]	Temp[2] [°F]	Body Yield[3] [klb]	Torque [ft-lb]
2-3/8 4.7#	80	10	2.00	3.20	18.2	14.8	300	148	2694
2-7/8” 6.4#	80	10	2.44	3.65	15.6	13.1	300	188	4373
3-1/2" 9.2-12.7#	125	10	2.99	4.50	23.6	19.8	300	470	14800
4-1/2" 13.5#	125	10	3.92	5.40	18.6	18.5	300	561	21700
5" 18-21.4#	125	10	4.28	6.00	19.7	18.8	350	761	34200
5-1/2" 17-23#	125	8.5	4.89	6.50	16.9	15.9	300	779	40000
5-1/2" 20-23#	125	10	4.78	6.50	19.0	18.1	300	872	40000
6" 24.5#	125	7.5	5.20	7.15	18.8	17.6	300	1049	51900
6" 24.5#	125	10	5.20	7.40	16.9	21.9	300	1040	54500
7” 32#	80	7.5	6.09	8.33	10	8.9	300	746	52170

[1] Material specification is configurable. [2] Tools validated with physical testing to listed differential pressure and temperature. [3] Calculated ratings based on Lamé’s formula and include no safety factor, rounded down to nearest 100 psi. Actual tool ratings may be higher than listed, depending on actual housing material yield strength. System limitation will depend on connections and tube yield strength.