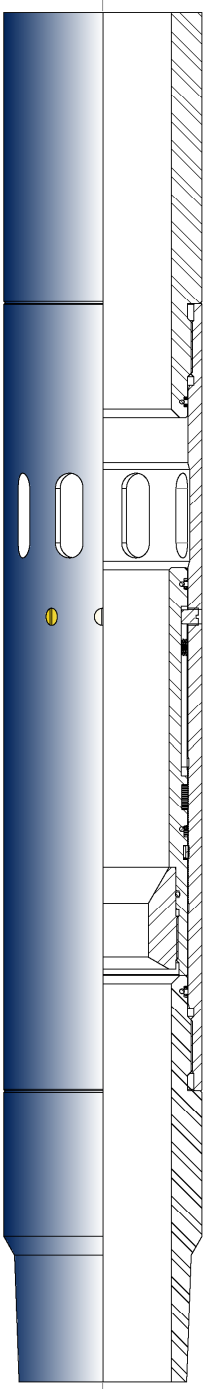


PetroFrac Ball Drop Frac Sleeve



The **Ball Drop Frac Sleeve** is utilized in multi-stage reservoir stimulation. An actuating ball is dropped from surface to the corresponding ball seat down hole. The ball and ball seat sizes are stepped up from smallest to largest (toe to heel). Once a ball is dropped and pumped down onto a seat, hydraulic differential pressure causes the inner sleeve to shift down opening the sleeve. The opening of the sleeve provides communication with the reservoir allowing the stimulation to begin. This process is repeated until every sleeve is opened and the hydraulic fracturing process is complete.

Features & Benefits

- 10,000 psi differential pressure rating
- 50+ stages
- Full casing ID (inner diameter) after drill out
- Field adjustable opening pressure
- Compact design for ease of handling
- Ball & seat optimized to give required pressure rating
- Compatible with dissolvable or composite frac balls
- Flow area through ports greater than liner ID
- Re-closeable options available

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Size (in)	Weight (lbs/ft)	OD (in)	OAL (in)	ID (in)	Pressure Rating (psi)	Force per Pin (lbs)
4 - 1/2	11.6 - 15.1	5.70	23	4.00	10,000	4,660

Seal Material	Thread	Material	# of Shear Pins	Shear Pin Value (psi/pin)
90 Duro HNBR	BTC/LTC 8rd	L-80	8	277
90 Duro HNBR	BTC/LTC 8rd	P110	8	277

Temp (°F)	Shear Value Pressure (psi)	Piston Area (in ²)	# of Shear Pins
325	2216	16.31	19.5