



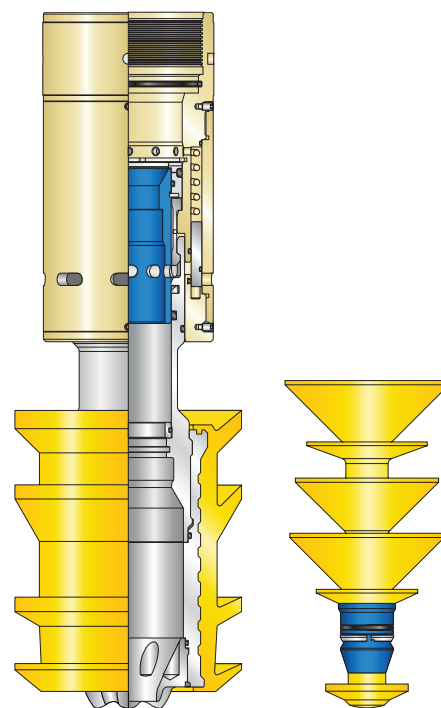
Sub-Surface Release™ Small-Bore Top Plug

For Casing and Liner Sizes 7 in. to 7-5/8 in.

Weatherford's industry-standard *Sub-Surface Release* small-bore top plug is designed for use with subsea casing hangers or hydraulic liner systems between 7 in. (177.8 mm) and 7-5/8 in. (193.7 mm) where the minimum drift of the drillstring is 2.17 in. (55.1 mm). When combined with Weatherford's autofill float valves, the 1.81-in. (46.0-mm) bore inside the plug improves fluid-flow capacity and reduces surge pressure on weak formations as the system is running in the hole. The patented, integral pressure-equalizer prevents pressure buildup above the plug to prevent premature release.

The plug is fully compatible with Weatherford's mechanical ball seat (MBS). During the cement job, the plug separates the top of the cement column from the displacement fluid, preventing cement contamination and confirming cement displacement when the plug lands on the float or landing collar at the bottom of the liner.

The *Sub-Surface Release* small-bore top plug can be used with Weatherford's autofill float equipment to reduce drillout and running-in-the-hole time. The plug is available in a latch-in, Wiperlok®, or standard flat nonrotating profile that corresponds to the compatible WLCD landing collar or 402/NP float collar. The plug fins are primarily constructed from polyurethane and are available in either standard or combination designs.



Sub-Surface Release small-bore top plug
with Wiperlok nonrotating profile

Applications

- Any liner for which a single wiper-plug system is required to provide separation of fluids during cementing operations
- Liners run with close-tolerance annuli
- Wiperlok configuration is compatible and recommended for use with Weatherford's 402P/NP float collars and autofill float equipment
- Latch-in configuration is compatible and recommended for use with Weatherford's WLCD landing collar
- Liners run in pressure-sensitive formations
- Standard flat configuration is compatible and recommended for use with Weatherford's 402 float collar and autofill float equipment



Sub-Surface Release™ Small-Bore Top Plug

For Casing and Liner Sizes 7 in. to 7-5/8 in.

Features, Advantages and Benefits

- The top plug is released by the top dart, maintaining fluid separation through the drillpipe, preventing cement contamination.
- The patented, integrated pressure-equalizer prevents pressure buildup above the plug to prevent premature release and enables rotation of the running string without rotating the plug in the casing, preventing damage of the fins on the plug.
- Polyurethane plug fins offer superior abrasion resistance and excellent wiping action, resulting in a clean casing ID after passage.
- Fully compatible with Weatherford's MBS to eliminate the need of a ball seat within the plug and unnecessary equipment below the float collar, improving operational efficiency and reducing cost.
- The plug is polycrystalline-diamond-composite (PDC) drillable with a Wiperlok®, latch-in, or standard flat nonrotating profile that prevents rotation of the plug during drillout of the float collar, simplifying drillout and saving rig time.
- The 1.81-in. (46.0-mm) bore enables the passage of 1.75-in. (44.4-mm) trip balls to pass through, activating float equipment below the plug.

Specifications

Plug sizes (in./mm)	7 177.8	7-5/8 193.7	7 × 7-5/8 177.8 × 193.7
Maximum plug-bump pressure (psi/MPa)	8,000 55.16		
Top plug-launch pressure (psi/MPa)	2,000 to 2,500 13.79 to 17.24		
Minimum plug ID (in./mm)	1.81 46		
Minimum flow area (in. ² /mm ²)	2.57 1,661		
Maximum rigid-dart diameter (in./mm)	2.13 54		
Minimum pump-through drift diameter for dart (in./mm)	2.17 55		
Flow endurance (bbl/min)	10 for 24 hr 14 for 4 hr		
Maximum circulating temperature rating (°F/°C)	257 125		
Maximum temperature for bump pressure rating (°F/°C)	350 177		
Equalizer actuation pressure (psi/MPa)	50 to 100 0.34 to 0.69		