



Micro-Seal™ Isolation System-Bow (MSIS-B)

Weatherford's patent-pending MSIS-B incorporates the *Micro-Seal* isolation system-unit (MSIS-U)—combining Weatherford's industry-leading centralization designs with its proprietary hybrid-swellable technology. After cementing, the swellable elements prevent the unwanted migration of well fluids through microannulus leak paths between the casing and cement sheath.

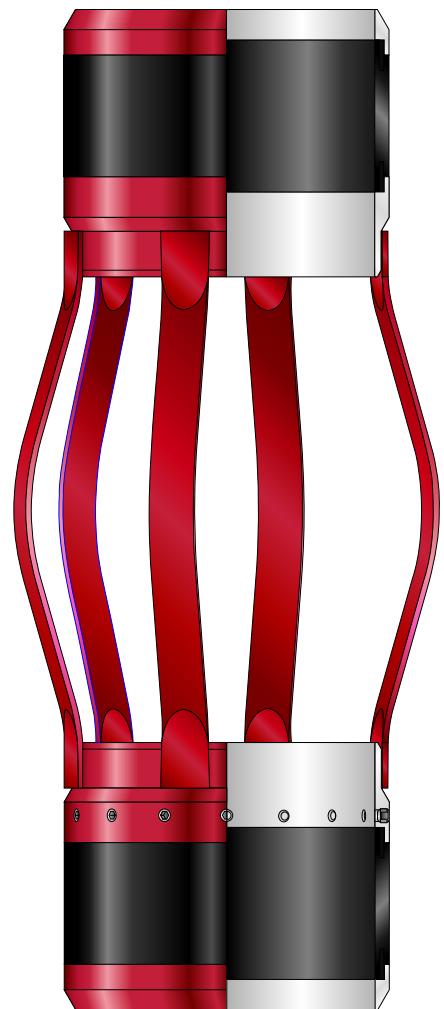
The MSIS-B offers a low-risk, cost-effective alternative to expensive and time-consuming remedial cementing operations, often necessitated by microannulus pressure migration. Part of the *Micro-Seal* isolation system, the MSIS-B is a slip-on device with bows designed for optimal casing standoff in appropriate cased-hole and openhole wellbore sections.

This MSIS-B system creates at least one point in the well with total annular isolation. The bows provide maximum standoff to achieve the most efficient displacement of mud and the most effective placement of the cement. The swellable *Micro-Seal* isolation unit is designed to swell in microannular spaces that may form during the life of the well. The combination of these tools results in a system that provides multiple isolation points within the annulus.

The system incorporates Weatherford's proprietary hybrid-swellable technology, therefore, the element swells when immersed in water/hydrocarbon-based wellbore fluids and/or wet gasses or any combination of these, ensuring that any potential microannulus is effectively sealed.

Applications

- Any well where the risk of microannulus gas migration is present
- Gas or liquefied petroleum gas (LPG) storage and injection wells
- Wells that must be fractured or acidized
- Wells with perforation damage to cement sheath
- Multiple completion wells (one or multiple casing strings)
- Wells to be stimulated by steam or other thermal processes and experience wide variances in temperature and/or pressure
- Any well location where there is a history of wellhead pressure buildup





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Features, Advantages and Benefits

- The MSIS-B is a cost-effective solution to prevent microannulus gas migration, eliminating the need for expensive remedial cementing operations—translating into significant cost savings.
- The swellable element effectively seals against the OD of the casing and the ID of the cement sheath, sealing regular and irregular annular geometries.
- The hybrid-swellable element can be activated by water/hydrocarbon-based fluids and/or wet gasses or any combination of these, ensuring zonal isolation in any environment.
- The MSIS-B, where possible, should be fitted over a stop collar to ensure the tool is pulled in or out of the wellbore. Alternatively, the set screws enable the MSIS-B to be secured to the tubing/casing (only if no rotation is planned).
- The integrated centralizer—a feature of the MSIS-B system—provides maximum standoff in multiple locations of the annulus, to give the best possible chance of achieving isolation, therefore, reducing remedial cementing operations and buildup of annular casing pressure.
- End rings protect the swellable element from damage while running-in-hole.
- Swellable elements can operate in downhole temperatures of up to 300°F (150°C), providing operational flexibility. Swellable elements with higher temperature requirements are available upon request.

Specifications

Tubular Size (in./mm)	Maximum Rigid OD (in./mm)	Maximum Bow OD (in./mm)	Overall Length (in./mm)	Number of Bows	Hole Size (in.)
4-1/2 114.30	5.52 140.10	7.13 181.00	33.13 841.40	4	6-1/4 to 6-3/4
5 127.00	6.02 152.80	8.88 225.40	32.88 835.00	4	7-7/8 to 8-3/4
5-1/2 139.70	6.53 165.75	9.38 238.10	32.88 835.00	4	8-1/2 to 9
7 177.80	8.04 204.10	9.63 244.50	33.13 841.40	4	8-1/2 to 9
7-5/8 193.70	8.67 220.10	10.25 260.40	33.13 841.40	6	9-1/4 to 9-7/8
8-5/8 219.00	9.68 245.80	12.13 308.00	33.00 838.20	6	11 to 11-1/2
9-5/8 244.50	10.76 273.20	13.50 342.90	32.88 835.00	6	12-1/4 to 12-3/4
11-3/4 298.50	12.91 327.80	17.75 450.85	35.75 908.10	6	14-3/4 to 16-1/2
13-3/8 339.70	14.56 369.90	19.38 492.10	35.75 908.10	8	16-3/4 to 18-1/2

For sizes and configurations not listed, contact an authorized Weatherford representative.