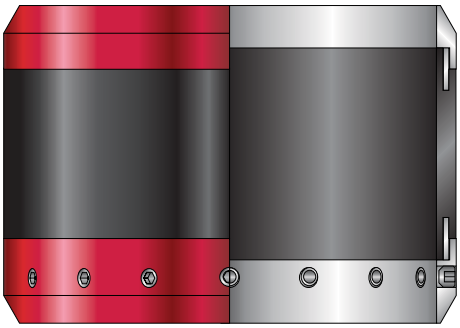
Micro-Seal™ Isolation System-Unit (MSIS-U)

Weatherford's patent-pending swellable elastomer *Micro-Seal* isolation system-unit (MSIS-U) safeguards long-term production integrity by preventing the unwanted migration of well fluids through microannulus leak paths between the casing and cement sheath. This system offers a low-risk, cost-effective alternative to expensive and time-consuming remedial cementing operations, often necessitated by microannulus pressure migration.

The *Micro-Seal* isolation unit incorporates Weatherford's proprietary hybrid-swellable technology. This feature means that 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.

The *Micro-Seal* isolation unit is a standalone, slip-on device designed for use in cased-hole and openhole wellbore sections. The MSIS-U is the heart of the *Micro-Seal* isolation system and when combined with one of Weatherford's industry-leading mechanical cementing products provides excellent casing standoff.



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 history of wellhead pressure buildup

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Features, Advantages and Benefits

- The *Micro-Seal* isolation unit 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.
- 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.
- The tool can be fitted between stop collars in any required configuration on any section of the tubing/casing. Alternatively, the set screws in the unit's end band enable it to be secured to the tubing/casing (only if no rotation is planned). It can also be deployed with Weatherford's industry-leading mechanical cementing products.

Specifications

Tubular Size (in./*mm*)	Maximum Rigid OD (in./*mm*)	Overall Length (in./*mm*)	Element Length (in./*mm*)	Minimum Hole Size (in.)
4-1/2 *114.30*	5.52 *140.10*	7.50 *190.50*	4.00 *101.60*	5-3/4
5 *127.00*	6.02 *152.80*	7.50 *190.50*	4.00 *101.60*	6-1/4
5-1/2 *139.70*	6.53 *165.70*	7.50 *190.50*	4.00 *101.60*	6-3/4
7 *177.80*	8.04 *204.20*	7.50 *190.50*	4.00 *101.60*	8-1/4
7-5/8 *193.70*	8.67 *220.10*	7.50 *190.50*	4.00 *101.60*	8-7/8
8-5/8 *219.00*	9.68 *245.80*	7.50 *190.50*	4.00 *101.60*	9-7/8
9-5/8 *244.50*	10.69 *271.50*	7.50 *190.50*	4.00 *101.60*	11
11-3/4 *298.50*	12.91 *327.80*	7.50 *190.50*	4.00 *101.60*	13-1/8
13-3/8 *339.70*	14.56 *369.90*	7.50 *190.50*	4.00 *101.60*	14-3/4

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