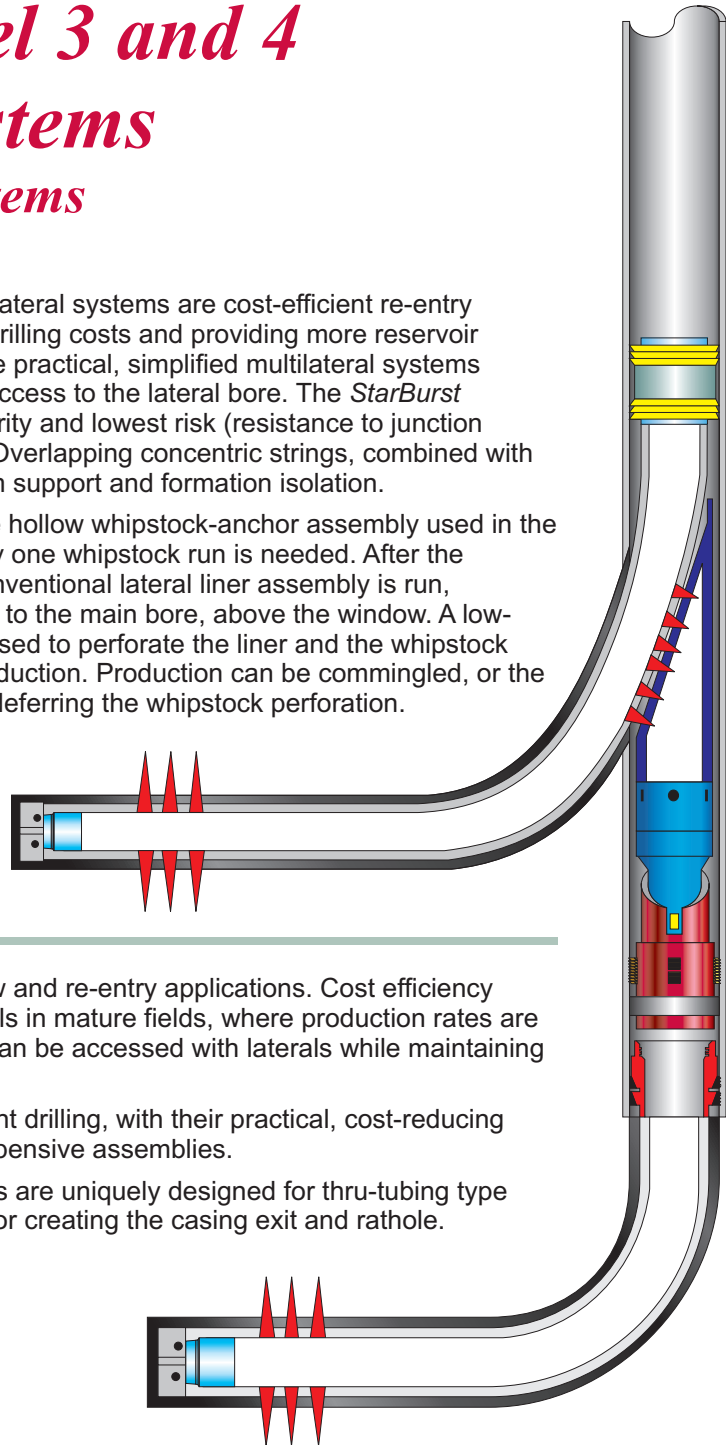




StarBurst™ Level 3 and 4 Multilateral Systems 3 1/2- and 4 1/2-in. Systems

Weatherford's *StarBurst* Level 3 and 4 multilateral systems are cost-efficient re-entry alternatives to drilling a new well, reducing drilling costs and providing more reservoir exposure and recovery for the money. These practical, simplified multilateral systems create a Level 3 or 4 junction with full-liner access to the lateral bore. The *StarBurst* systems have the greatest mechanical integrity and lowest risk (resistance to junction collapse) of any Level 3 or Level 4 system. Overlapping concentric strings, combined with the cement, ensure a junction with maximum support and formation isolation.

Installation is expedited with a multi-purpose hollow whipstock-anchor assembly used in the milling, drilling, and completion phases. Only one whipstock run is needed. After the window is milled and the lateral drilled, a conventional lateral liner assembly is run, cemented (in a Level 4), and anchored back to the main bore, above the window. A low-side-oriented perforating technique is then used to perforate the liner and the whipstock pressure plate to re-establish main-bore production. Production can be commingled, or the new lateral can be kept separate by simply deferring the whipstock perforation.



Applications

- The *StarBurst* systems are effective in new and re-entry applications. Cost efficiency makes them particularly well suited for wells in mature fields, where production rates are declining and nearby additional reserves can be accessed with laterals while maintaining production from the original wellbore.
- The systems are ideal for new-development drilling, with their practical, cost-reducing technology that eliminates the need for expensive assemblies.
- The 3 1/2- and 4 1/2 -in. *StarBurst* systems are uniquely designed for thru-tubing type applications, using a diamond speed mill for creating the casing exit and rathole.



StarBurst™ Level 3 and 4 Multilateral Systems *3 1/2- and 4 1/2-in. Systems*

Features, Advantages and Benefits

- The *StarBurst* systems allow production from the existing wellbore as well as from the lateral. With this advantage a sidetrack can be made to access new reserves without sacrificing current production. Net present value (NPV) can be maximized by bringing the new lateral online immediately rather than waiting for current production to become uneconomic.
- The straightforward design of the *StarBurst* systems eliminates considerable jewelry and construction work downhole, making the most out of every well slot to increase reliability and reduce risk and costs.
- The unique, multi-purpose hollow whipstock helps speed system installation to save a day or more of rig possession time, compared to competing systems. Conveyed on the running tool, the whipstock stays in place for window milling, lateral drilling, liner anchoring, and production. With a simple perforation design, the whipstock restores main-bore flow to commingle with lateral production.
- A special diamond speed mill and a drilling motor quickly mill a smooth, elongated window to facilitate trouble-free running of the lateral liner and drilling in hard formations.
- Overlapping concentric strings, anchored in place, create a stronger lateral junction, providing secure formation isolation and sand control.
- The lateral liner tieback to the main bore provides mechanical integrity and connectivity with full access to the lateral and production access to the main bore.
- The *StarBurst* systems are compatible with conventional or intelligent completions. Their simple junction configuration mimics a standard tapered liner string. With no access windows or unsupported liners to maneuver through, completion hardware passes through the junction with ease, and completion installation risks are reduced.

Specifications

System size (in./mm)	3-1/2	4-1/2
Casing weight (lb/ft)	9.3	12.6
Maximum OD, whipstock (in./mm)	2.50 63.5	3.63 92.2
Maximum OD, packer body	Per packer specifications	
OD, packer gauge ring		
Minimum ID, packer/shear sub		
Recommended setting pressure, packer		
Maximum differential pressure below packer		
Maximum differential pressure above packer		
Whipstock angle	2°	
Whipstock concave pressure rating (psi/bar)	3,500 241.3	5,000 344.7
Window length (ft/m)	5 1.52	6 1.83
Material	4140 – 80ksi	
Maximum OD, mill (in./mm)	2.74 69.6	3.80 96.52