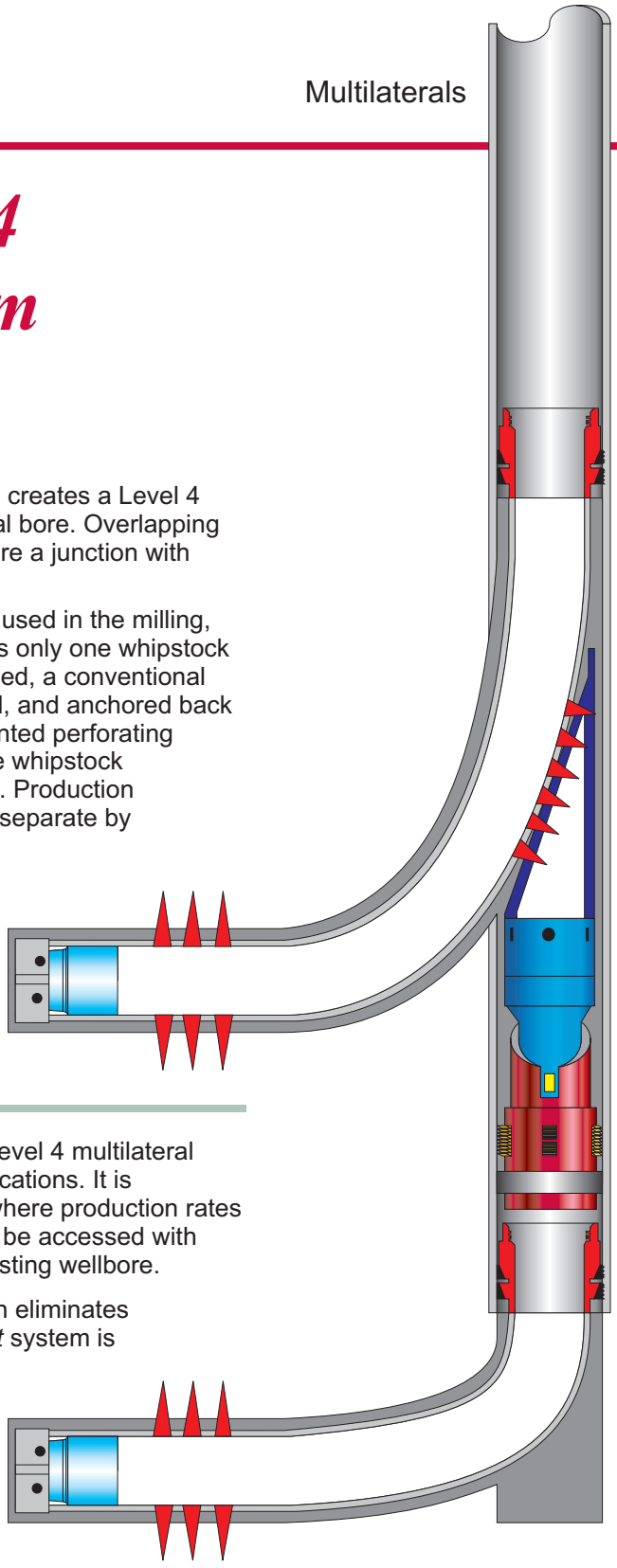
Weatherford®

StarBurst™ Level 4 Multilateral System

5 1/2-in. System



Weatherford's *StarBurst* Level 4 multilateral system creates a Level 4 cemented junction with full-liner access to the lateral bore. Overlapping concentric strings, combined with the cement, ensure a junction with maximum support and formation isolation.

With its unique hollow whipstock-anchor assembly, used in the milling, drilling, and completion phases, the system requires only one whipstock run. After the window is milled and the lateral is drilled, a conventional lateral liner assembly is run in the lateral, cemented, 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* system is a low-risk, economical Level 4 multilateral solution that is effective in new and re-entry applications. It is 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 existing wellbore.
- With its practical, cost-reducing technology, which eliminates the need for expensive assemblies, the *StarBurst* system is also ideal for new development drilling.
- The *StarBurst* system is compatible with conventional or intelligent completions.

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Features, Advantages and Benefits

- The *StarBurst* system allows production from the existing wellbore as well as from the lateral.
- The system provides a cost-effective way of maximizing reservoir exposure and increasing reservoir recovery without the cost or potential environmental consequences of drilling additional vertical wells.
- The unique hollow whipstock is conveyed on the starting mill and is suitable for both milling and production operations. The recessed pressure plate ensures pressure integrity during milling. Retrieval of the whipstock is not required, so the risk of not recovering the whipstock is eliminated.
- Special mills prevent damage to the pressure plate and provide an elongated window.
- 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.
- Overlapping concentric strings, combined with cement, provide sand control at the junction.

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Specifications

System Size (in./*mm*)	**5.5** ***139.7***
Casing weight (lb/ft,*kg/m*)	20 to 23 *29.8 to 34.2*
Maximum OD, whipstock (in./*mm*)	4.38 *111.3*
Maximum size, liner (in./*mm*)	3.5 *88.9*
OD, perforating gun (in./*mm*)	2.375 *60.3*
Number of perforations	36
Flow area after perforating (in.^{2}/*cm*^{2})	1.48 *9.55*
Maximum OD, packer body (in./*mm*)	4.468 *113.5*
OD, packer gauge ring (in./*mm*)	
Minimum ID, packer/shear sub (in./*mm*)	1.75 *44.5*
Maximum differential pressure below packer (psi/*kPa*)	5,000 *34,474*
Maximum differential pressure above packer (psi/*kPa*)	
Maximum temperature (°F/°*C*)	275 *135*
Whipstock angle	2°
Window length (ft/*m*)	12 *3.7*
Overall length, whipstock/latch (ft/*m*)	16.85 *5.1*
Material	4140 – 80ksi
Maximum OD, mill (in./*mm*)	4.53 *115.1*
Maximum system OD, kick pad (in./*mm*)	4.56 *115.8*
Shear release *(recommended)*	
Running tool from whipstock (lb/*kg*)	24,000 *10,886*
Whipstock from packer *(contingency)* (lb/*kg*)	60,000 *27,216*
Torque rating, system (ft-lb/*N•m*)	5,000 *6,779*

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