MillThru™ Level 4 Multilateral System with PakLatch™ Re-entry

Provides a low risk, cemented, and mechanically supported multilateral junction

Applications

- New and re-entry wells
- Multilateral wells that require re-entry capability in both wellbores
- Multilateral wells that contain more than one junction and lateral

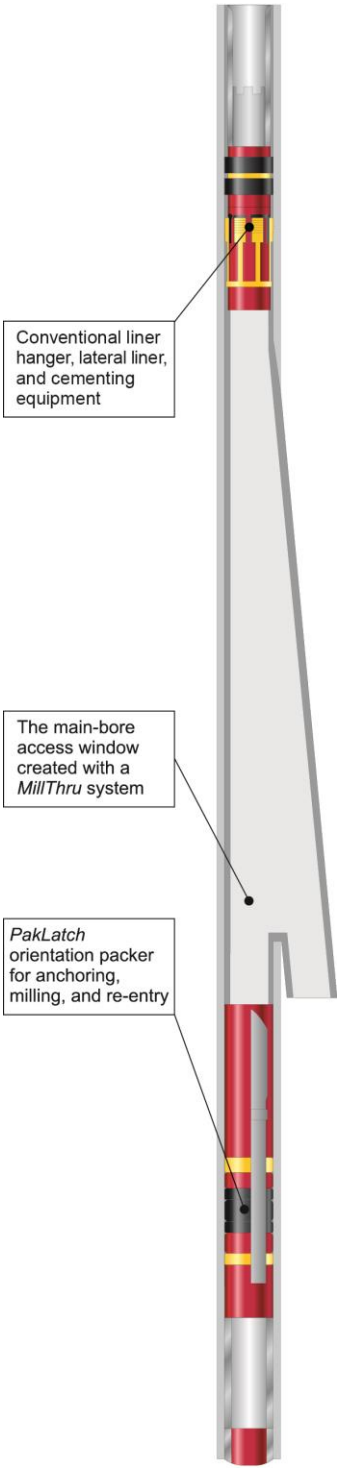
Features and Benefits

- The system eliminates the need for special junction hardware, which enables the creation of a low-cost Level 4 junction.
- Installed with standard milling, drilling, and completion techniques, the system reduces the risk of problem situations, delays, and cost overruns.
- The simple lateral liner installation does not require orientation or depth correlation, thus eliminating a risk often associated with multilateral junction installation.
- Completed junction utilizing a lateral liner fully cemented into mainbore provides maximum mechanical support at the junction.
- The permanent PakLatch packer and re-entry deflector guide provides a permanent orientation anchor point to simplify casing exit and future re-entry operations.
- Use of the PakLatch packer provides hydraulic isolation of the mainbore during junction construction and lateral drilling.
- The flow-activated re-entry anchor and deflector system can be run through multiple orientation packers. This allows for the installation of multiple MillThru junctions in a single well, while providing re-entry capability into all laterals.

Tool Description

The Weatherford MillThru Level 4 multilateral system with PakLatch re-entry creates a Level 4 junction with large-diameter access to both the lateral and main bores. Overlapping concentric strings, combined with cement, create a junction with maximum support. This low-cost, low-risk system uses standard casing exit equipment to create a lateral window.

A PakLatch permanent packer assembly is installed in the mainbore, and a self-aligning QuickCut™ whipstock is latched into the packer at the intended azimuth. To create the lateral access window, a routine casing exit is performed. Conventional methods are used to drill, case, and cement the lateral liner. The MillThru milling assembly is then run in the well and mills an access window through the lateral liner overlap at the junction and back into the mainbore. An optional re-entry deflector, with flow-activated anchoring system, is available for selective re-entry of multiple laterals with the ability to pass safely through multiple orientation packers.



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Weatherford®

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Specifications

Measurement

System size	9 5/8 in.
Liner weight	40 to 53.5 lb/ft
Maximum OD, packer body	7 in. (178 mm)
OD, packer gauge ring	23 to 29 in. (584 to 737 mm)
Minimum ID, packer/O-riser	8.25 in. (210 mm)
Maximum differential pressure, packer	5,000 psi (344.7 bar)
Maximum temperature	275°F (135°C)
Snap-in force, packer milling latch	>5,000 lbf (2,224 daN)
Snap-out force, packer milling latch	100,000 lbf (44,482 daN)
Calculated dogleg severity of the liner through the casing exit window	10.2° per 100 ft (30.4 m)
Mainbore window	6 to 6.3 in. (152 to 160 mm)
Maximum mill OD	6.125 in to 6.3 in (155.6 to 160 mm)
Torque rating, packer/O-riser	10,000 lb/ft (13,558 n•m)
Torque rating, system	10,000 lb/ft (13,558 n•m)