

Alternate Path Multizone Completions

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The Alternate Path® multizone (MZ) completion system is used to complete multiple zones in a single trip. The system is designed for ease of operation, flexibility, reliability, and zonal isolation. This system can be used for multiple gravel packs, multiple STIMPAC* fracturing/gravel-packing service to bypass damage, or a combination of both.

In addition to the same rugged and field-proven packers, hydraulic service tools, and extensions found in the QUANTUM* single-zone, gravel-pack system, the Alternate Path MZ system utilizes the cup-type MZ packer. This packer is placed within the screen section of the assembly according to the completion configuration. Based on Alternate Path technology, the MZ system accomplishes STIMPAC gravel-pack service or gravel packing of multiple zones during a single sand-control system run and with a single pumping operation. This is done without losing either the standard or optional features available in the QUANTUM single-zone, gravel-pack system.

Using standard QUANTUM equipment, the Alternate Path MZ system is compatible with any carrier fluid or proppant. The number of shunt tubes and their styles can be customized to meet virtually any demand for pumping rate and pressure. This system provides maximum flexibility through multiple configuration options.

Running the assembly

The Alternate Path gravel-pack assembly is made up on the surface and installed in the well. The MZ packer is placed in the Alternate Path screen section to provide effective downhole isolation within the reservoir section.

When the assembly is at the proper depth, the QUANTUM packer is set and tested. The service tool is then released from the packer, without rotation.

Gravel and proppant placement

By using innovative Alternate Path technology, the gravel pack or STIMPAC service can be performed in the squeeze or circulating positions, while monitoring annulus pressure and with or without taking fluid returns. Alternate Path technology allows both zones to be treated, even though the Alternate Path MZ packer is present.

Gravel packing and STIMPAC treatments can be performed in multiple zones by performing a STIMPAC service on the top set of perforations and a gravel pack on the bottom set, or vice versa.

Excess gravel

Any remaining gravel slurry is reversed out and measured. The formation is protected from fluid loss by the service tool while fluids are being reversed out. The QUANTUM service tool and wash pipe are retrieved from the well, and the production tubing is installed. During this process, the formation is protected from fluid loss with a large-bore flapper valve or another fluid-loss prevention device like the FIV* Formation Isolation Valve tool.

Production

Production tubing is run and sealed in the bore of the QUANTUM retrievable production packer. The production tubing can also be extended to seal in the Alternate Path MZ packer sealbore to provide a single selective completion. The well is then placed on production. If excess water production is problematic, standard zonal isolation techniques, such as setting a bridge plug, can be employed.

Applications

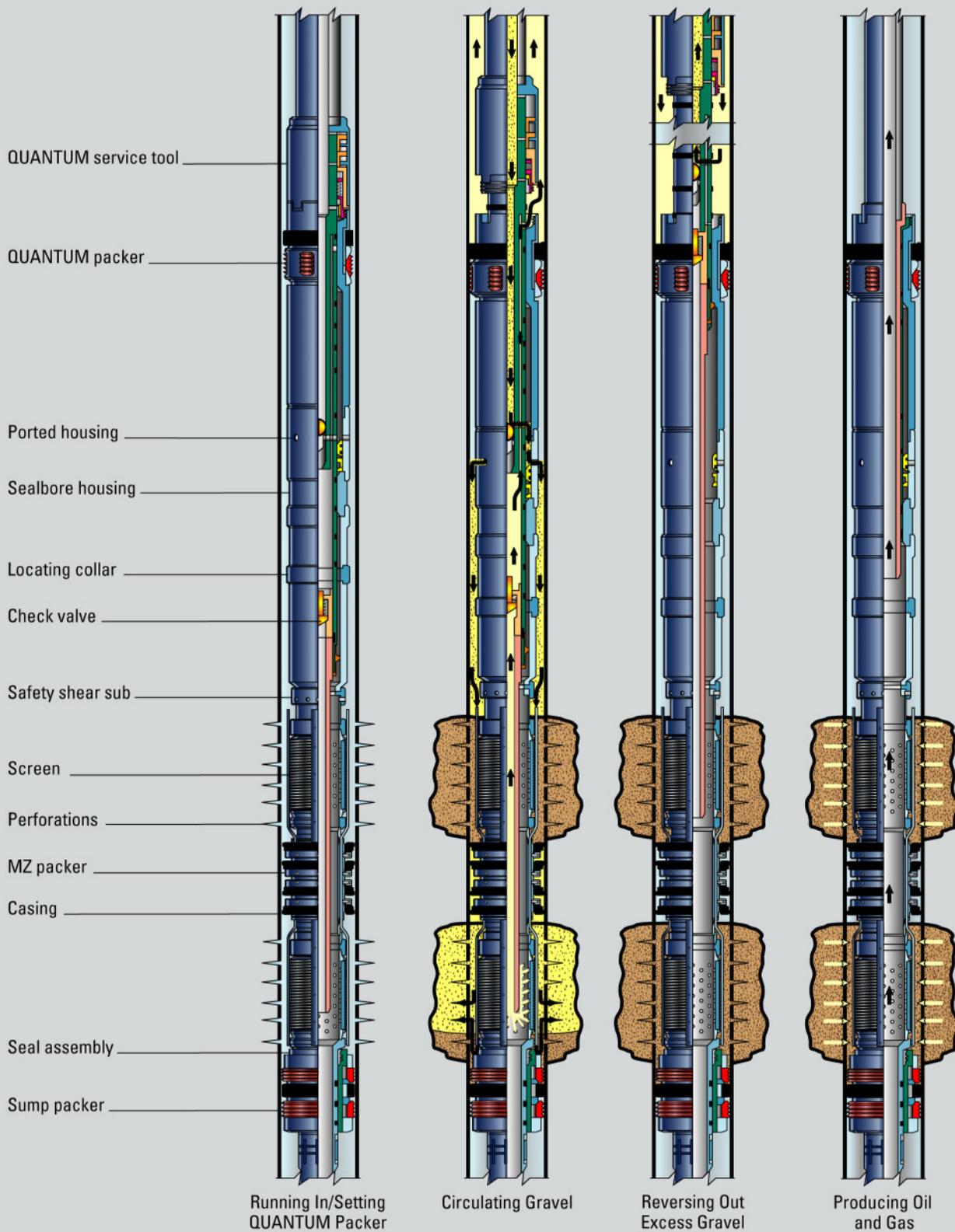
- Single-trip or multiple-zone completions
- Gravel-pack or frac-pack treatments
- Water encroachment control
- Floating-rig and deepwater operations
- Interval isolation

Benefits

- Enhanced field economics through versatile and reliable operations
- Reservoir protection from fluid loss
- Facilitates the use of clean-fluid technology
- Saves rig time

Features

- Pressure data gathering capabilities
- Tool-positioning system supports floating-rig and deepwater applications
- Single-step multizone completions
- Allowance for short spacing between zones



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