

Delivers consistency and performance improvement by automating well construction tasks

Applications

Onshore and offshore drilling

How it improves wells

- Provides consistent rig performance
- Increases efficiency by improving ROP and enhancing bit and tool performance
- Reduces operational downtime by autonomously mitigating risks

How it works

DrillOps Automate is an adaptive drilling module of the DrillOps* on-target well delivery solution, operating within DELFI* E&P cognitive environment. It enables you to drill from slip to slip in a goal-oriented, consistent, and efficient manner. The system controls only the rig equipment you authorize and is constantly aware of operational conditions and rig equipment status. Adaptive drilling means the system continuously monitors and adjusts to account for changing goals or operating conditions. However, a manual override easily recovers full equipment and system control at any time by any joystick interaction from the driller or other changes made on the rig-control system.

Preconnection

The adaptive drilling system manages activities such as drilling off, moving the string to the connection point, and stopping rotation and pumps. Management of working the pipe or reaming up and down is optional.

Postconnection

The postconnection process automates steps from the time the driller removes the slips to the point where the bit is back on bottom. Following standard procedures and using predefined parameters, the steps include starting pumps, taking surveys, ensuring the BHAs are free, starting rotation, resetting WOB, and going on bottom.

Drilling and on-bottom optimization

Autonomous drilling optimizes the ROP within specified limits. The system monitors and adapts to mitigate unwanted conditions, such as shock and lateral vibration or hard stringers. Managing the unwanted condition is conducted in parallel with ROP optimization.

This maximizes drilling time while reducing the risk of damage to surface equipment, the bit, and downhole tools.

Other Functionality:

- Automated survey procedure[†]
- Automated rpm or flow downlinks, both off bottom and while drilling[†]
- Automated friction test
- Circulate bottoms up—system will circulate until the configured volume has been achieved while reciprocating the drillstring
- Automated mud motor differential pressure control
- Automated on- and off-bottom constraints response.

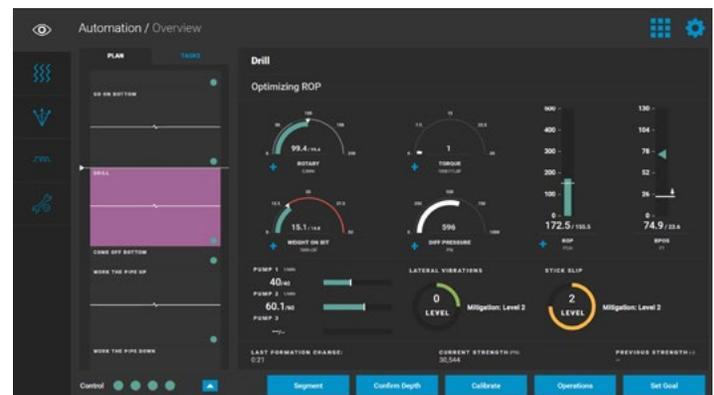
[†] Currently limited to Schlumberger tools only.

What it replaces

Comparable manual tasks.

The takeaways

DrillOps Automate, through its automated and autonomous capability, delivers improved consistency of repetitive tasks and optimizes performance though maximizing ROP while preventing downhole tool damage and bit damage through drilling dysfunction management. The module also links with the DrillPlan* coherent well planning solution, enabling a complete end-to-end solution to deliver wells on time.



The DrillOps Automate dashboard provides the driller with an overview of activities and conditions.

What is the DELFI cognitive E&P environment?

The secure, scalable, and open cloud-based DELFI environment provides seamless access to software across exploration, development, drilling, production, and midstream applications—all delivered via a flexible and personalized SaaS subscription model. Combined with domain expertise, digital technologies in the DELFI environment help solve challenges across the E&P life cycle.