DrillSmart®
Automatic Driller

For precise control and optimal drilling performance

NABORS
Nabors’ DrillSmart® Automatic Driller helps hold drilling parameters within strict tolerance bands to provide smoother control that increases the rate of penetration and reduces wear and tear on drilling equipment and downhole tools.

About DrillSmart® Technology

DrillSmart® Automatic Driller features patented technology and uses proprietary equations and advanced algorithms that mimic intuitive decision-making by experienced drilling personnel. The result is improved weight on bit (WOB) and delta pressure (DP) control which can lead to more consistent rate of penetration, less wear on the bit and mud motor and potential elimination of trips.

Self-optimizing algorithms allow the DrillSmart® driller technology to instantaneously adapt the drilling dynamics of the rig as the geology changes. A combination of physical controls an intuitive touch-based user interface enables the driller to be productive as soon as the system is installed.

Our DrillSmart® system is applicable regardless of well type and features multiple configurations compatible with our PACE® fleet of rigs.

Additionally, the DrillSmart® Automatic Driller system tightly integrates with our new state-of-the-art Rigelligent™ control systems that feature:

- A modular design to enable rapid development and re-use of commercialized software components
- A new user interface that aligns driller controls with the workflow of current rig activity
- Intuitive “application icons”, similar to that of mobile devices with navigation that is customized to match the current drilling operations underway on the rig
- A new architecture that simplifies the support of each of Nabors PACE® rig designs

When the automatic driller and controls systems are used together, the driller is able to optimize performance without switching between application screens. The automatic driller system is tuned for the specific drives in use by the rig. The control system uses operational scripts to drill a stand down, then raise to a predetermined height to set slips or to automate tripping to a predetermined height with a load.

CASE STUDY

Nabors’ best-in-class automatic drilling DrillSmart® system enables higher ROP and more consistent drilling performance.

Example: 34% improvement in ROP vs. Wildcat for vertical selection (4 wells)

<table>
<thead>
<tr>
<th>Range</th>
<th>Wildcat 1</th>
<th>Wildcat 2</th>
<th>DrillSmart® 1</th>
<th>DrillSmart® 2</th>
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<tbody>
<tr>
<td>2,500 - 5,000</td>
<td>2,880</td>
<td>3,000</td>
<td>4,080</td>
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<td>5,000 - 7,500</td>
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<td>3,120</td>
<td>3,360</td>
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<td>2,208</td>
<td>2,880</td>
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</tbody>
</table>

ROP, ft/day

- WILDCAT 1
- WILDCAT 2
- DRILLSMART® 1
- DRILLSMART® 2
Adding DrillSmart® technology to a rig can reduce well time through improved ROP and less wear on downhole tools.

WHY CHOOSE NABORS DRILLSMART® AUTOMATIC DRILLER OVER THE COMPETITION?

- Precise control for smoother drilling
- Improved rate of penetration through proprietary algorithms
- Reduced wear and tear on equipment
- Real-time response to changes in drilling dynamics
- Minimized need for driller input
- Intuitive user controls

ENHANCE YOUR OPERATIONS

Nabors offers an integrated suite of performance products and services that work with the DrillSmart® Automatic Driller to improve drilling performance.

DrillSmart® technology coupled with our ROP Cruise Control™ system minimizes the level of input, while providing smoother drilling and improved WOB and DP control. The DrillSmart® system also fully integrates with Nabors RigWatch® suite and the myWells.com® application for comprehensive monitoring of your drilling operations.

Other performance products that complement the DrillSmart® system to enhance drilling operations include:

- **Total Control Non-Stop Driller:**
  A sub-based constant circulation system designed to improve drilling efficiency, operational safety, hole condition and equipment integration.

- **ROCKit® System:**
  A patented directional steering control system that oscillates drill pipe to reduce friction and increase penetration rate.

- **REVit™ System:**
  A real-time stick slip mitigation system that allows consistent application of more torque to bit in hard rock formations to extend bit life, reduce tool failures and increase penetration rate for significant savings in drilling time and cost.
What makes Nabors stand apart:

- A global oil and gas drilling contractor, serving both land and offshore drilling customers
- A leading provider of innovative drilling equipment, software and technology
- An industry pacesetter in advanced drilling technologies
- Experienced and well-trained crews that consistently demonstrate industry-leading safety performance

Why choose Nabors?

With operations in more than 20 countries, Nabors is one of the world’s largest oil and gas drilling contractors. Our vision is to be the driller of choice for customers, investors and employees by focusing on technology, safety and performance.

We not only provide global drilling services for both land and offshore, but we’re also a leading provider of drilling equipment, software and technology. Combined with the experience of our people, we continue to transform the global drilling industry by providing RigelligenceSM for the Future.

Our goal is to provide our customers with the highest level of excellence and performance – on every rig and well. Every time.